Page 6

Atari Users Magazine

Issue 17

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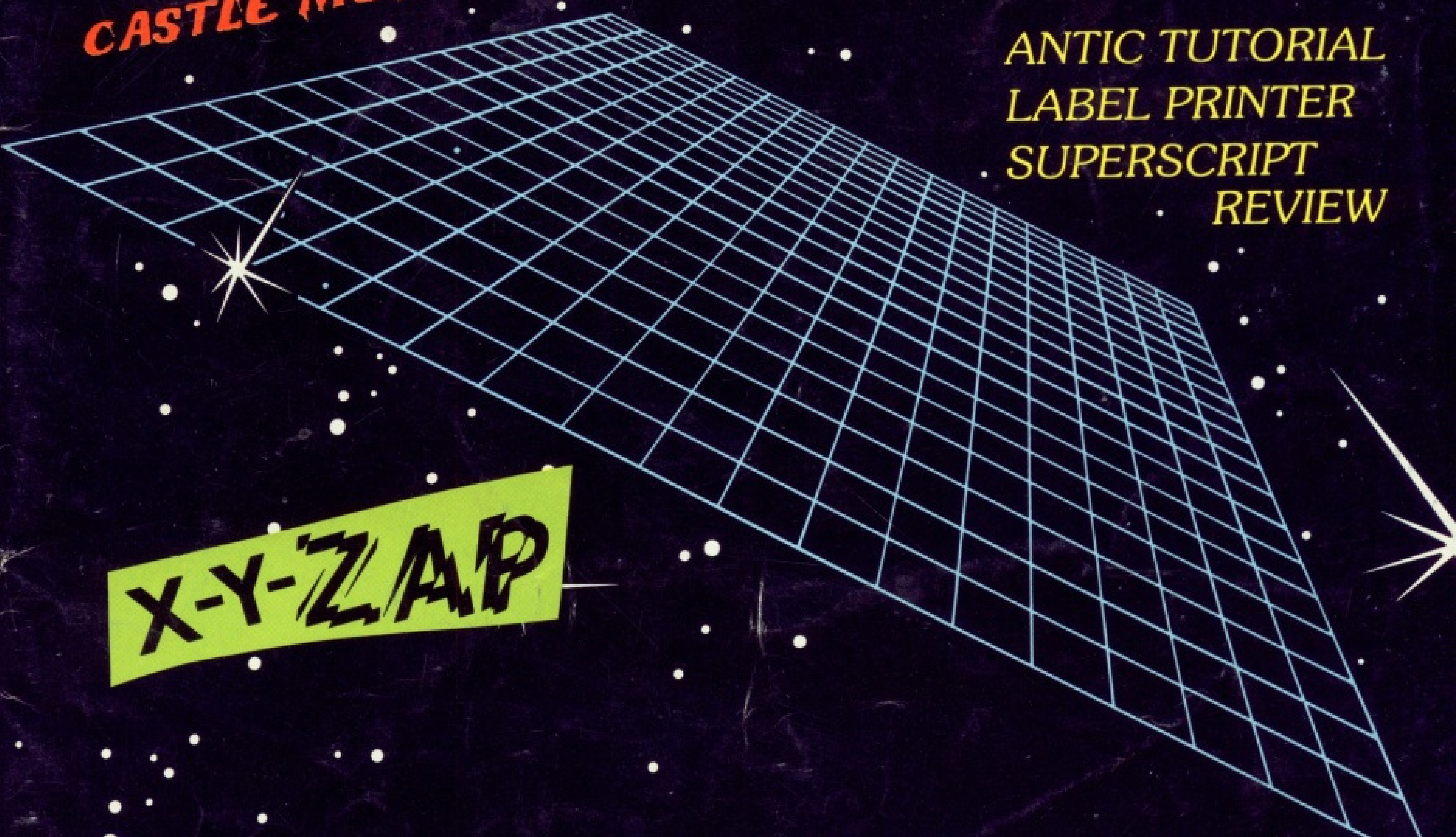




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PAGE 6 is a user's magazine and relies entirely on readers' support in submitting articles and programs. The aim is to explore ATARI computing through the exchange of information and knowledge. We will endeavour to pay for articles and programs where appropriate and we hope that you will gain satisfaction from seeing your work published. In turn we hope that you will learn from articles submitted by other readers. All published material is eligible for awards in the Annual Readers' Poll and may receive additional Editorial awards as announced from time to time in the magazine.

September/October 1985

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Editorial

READY FOR TAKE-OFF?

This could be the start of something big. After a comparatively quiet period since Jack Tramiel took the reins Atari look like making big moves in Europe at last. The PCW show at Olympia looks to be the focal point for anyone interested in Atari as detailed in the preview elsewhere in this issue. Many of us have been to exhibitions in the past and we have nearly all come away extremely disappointed at the lack of support for Atari and have probably vowed not to bother next time. I hope that PCW 85 will be different (not least because we will be there!) and will be the turning point for Atari users in this country whether those new to the Atari world or those, like me, who have been there since the days of the £345 16k 400 and the £645 16k 800. Can the complete ST package really be just over £100 more than that price?

Only a short editorial this issue to give us room for a plug for our stand at PCW besides which you won't have time to read much more if you want to type in Castle Morgue!

The 8th Personal Computer World Show

Atari will be giving the 520ST its official European launch at the PCW Show at Olympia in what will be possibly the biggest display Atari has yet arranged in the U.K. Jack Tramiel thinks it is important - he will be there on the opening day.

Turn right through the main doors of Olympia and you will come to the first of Atari's THREE massive stands demonstrating not only the 520ST but the 130XE range and plenty of software. The display, with almost three times more floor space, should far outdo any other manufacturer. Details of *exactly* what Atari will be showing were not available at the time of writing but there is no doubt that you will find more of interest at this year's show than ever before. One major innovation is that third-party software houses will be demonstrating their software on one of the Atari stands and will give owners the chance to see the very latest software for both the 8-bit and ST machines.

Rumours in the trade say that over 100 new software items will be unveiled. Among those to look out for either on Atari's stand or elsewhere are:

* *Chipsoft with a new database for the 8-bit range called MICROBASE + which can be interlinked with Atariwriter and has an average search time for any record of just 1.5 seconds. Also to be shown will be an Integrated Accounts package for the ST.*

* *English Software who will be showing their latest releases and their first program for the ST.*

* *Level 9 with Red Moon promising 'something special' for the Atari version and 'possibly' their first release for the ST.*

* *Database Publications who, as well as Atari User, should have the first of several software releases.*

* *Precision Software with Superscript for hands on testing as well as SuperType - a new typing trainer.*

* *Llamasoft with live demos of Colourspace accompanied by the best in rock music and 'possibly' early developments for the ST. Also, not to be missed, Jeff Minter's very own psychedelically painted 130XE! The only one of its kind!*

Plus .... who knows? There are bound to be a number of companies introducing software for the ST who have never written for Atari before. Atari say that over 100 development packages have been sold in the U.K. and many software houses previously 'unknown' to the Atari world are preparing to support the ST and XE in a big way.

PCW85 is not to be missed. Maybe the prototype for the first Atari User Show? The show is held at Olympia and opens to the public from 6th September to 8th September.

News

BOUNTY BOB STRIKES BACK - CHEAPLY!

After a long wait and a shock £50 ROM from the U.S.A. (see letters issue 16), Bounty Bob Strikes Back was released by U.S. GOLD in late July on 64k cassette for just £9.95 or 48k disk for £14.95. The cassette version will only run on the 800XL or 130XE because of the massive amount of code originally contained in the 40k ROM. 400/800 owners who feel peeved by a 64k cassette should bear in mind that a game of this size would not normally make it to cassette at all and Geoff Brown of U.S. Gold told us that Big Five had no intention of releasing any version other than the ROM. The cassette and disk versions are only available via U.S. Gold in a rare deal that gives U.K. owners an advantage over the U.S. for a change.

Bounty Bob may have been a long time striking back but U.S. Gold promise that their future Atari releases will appear at the same time as Commodore versions.

MORE FROM LUCASFILM

Hot on the heels of the (final) official versions of Rescue on Fractalas and Ballblazer come two new games from Lucasfilm and Epyx scheduled for U.S. release in the autumn.

KORONIS RIFT is a strategy game set in the future in which you are a techno-scavenger searching for artifacts left behind by a coalition of races that once inhabited the galaxy. You discover a weapons testing ground and drop on the surface of Koronis to scavenge. The rift is a huge Grand Canyon like chasm through which you must fly but the game features also a deal of strategy to reach this far. One of the Lucasfilm team describes the play as 'much the same as a text adventure'. The animation is similar to Rescue on Fractalas but also includes incredible GTIA animation produced by Jim St. Louis who was responsible for the robot and spacecraft on Atari's demo disk.

The second game is EIDOLON which takes you back in time to the 19th century. The Eidolon is like a magic time machine in which you explore an immense cavern on a voyage of discovery. This one is said to use animation techniques never before used in home computers of the kind used for current commercial cartoons. Certainly two to look out for.

GRAPHICS AND KUNG FU!

English Software will shortly be releasing a new Graphics Arts package for use on 48k systems. They say it includes all of the features of existing graphics programs with the added ability to lift and place individual images from within a picture. This is the one feature that makes many of the dedicated graphics computers so powerful and it will be interesting to see on the ATARI.

For those with less artistic inclinations English Software have announced what they say is 'the first Atari Kung-Fu game programmed in the U.K.'. Requiring 48k it will pit two Kung-Fu experts against each other in one or two player combat. The game is entitled CHOP SUEY and will retail at £8.95

ANYONE IN CARDIFF?

Dear Editor,

I would be grateful for your assistance in printing the following plea for help.

I have 'output', do you have 'input' and live in the Cardiff area? If so and you are interested in joining or forming an Atari User Group please contact me at the address on this letter. You may even find a computer being put to uses that you had not thought of. I look forward to hearing from all you Atari enthusiasts in the wilds of the Cardiff area.

Yours faithfully,
Raymond Price,
Mandeville House,
9, Lewis Street,
Canton,
Cardiff

1027 PRINTER

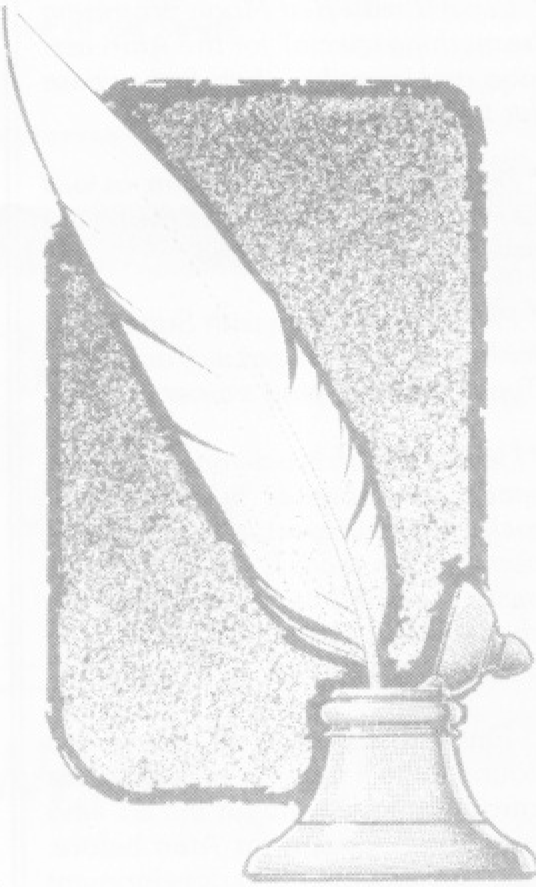
Dear Les,

I was particularly interested in Phil Rae's article in issue 16 regarding Atariwriter and the 1027 but I was a bit concerned about his suggestion to re-ink the roller using ordinary stamp pad ink. During seven years as a franking machine engineer, I came across a number of inking rollers that had been re-inked with this stuff and it invariably ruined them. After a while the thin endorsing ink (which is made for *rubber* stamps) begins to dry and leaves a tacky, impermeable glaze over the surface. It is very much better to use the thicker ink that is specially formulated for use with *metal* dies such as automatic enumerators and cheque signing machines. I have successfully, and repeatedly used this type without any sign of glazing.

A few more tips. If you select Printer Option 2 you can use Inverse Video to underline but your line feed instructions in the formatting block are ignored and you must insert your own returns where you require double spacing. If using Alog Pagewriter CTRL-O starts underlining and CTRL-N stops it. When using Letter Perfect, select E for Epson printers rather than Atari and CTRL-V, 15 starts underlining and CTRL-V,14 stops it.

I hope that these tips will help others with the 1027.

Best Regards,
Keith Berry,
Birmingham



ILLOGICAL ADVENTURES?

Dear Les,

I have recently finished The Sorceror of Claymorgue Castle' and there are a couple of points you might like to publish to aid anyone who is getting frustrated by it. Firstly, the American for cupboard appears to be cabinet. Secondly, and much worse, Scott Adams has chosen, for some unfathomable reason, to define a new meaning to the word WALK. Whereas RUN, CLIMB and GO appear to be entirely synonymous, WALK means, illogically, something entirely different! I would be grateful if anyone can explain why there are certain places where I can GO or RUN in, but not out, though I can WALK out and certain very similar places where I can GO and RUN both in and out but I can't walk in or out. What does Scott Adams think WALK means? Infocom was never like this. Having survived some Vogon poetry, I am now attempting to persuade a door that I am intelligent, but I am confident that the solution will be more interesting than *guessing* that WALK and RUN bear no relationship to one another!

Yours,
John Sweeney,
Nottingham

VAL+GET=PROBLEM

Dear PAGE 6,

I have a tip for anyone who is having problems when using the VAL and GET functions in the same program.

An error occurs when you use the VAL function to convert a numeric string to a numeric value. The VAL function alters the BASIC buffer pointer INBUFF to point to the string where the value is to be taken. Then when you do a GET function the character you GET will be stored in the string that VAL used instead of the location pointed to by INBUFF. The value in INBUFF would be correct if the VAL routine in the O.S. had re-initialised INBUFF but it doesn't.

The pointers for INBUFF are stored at locations F3, F4 hex or 243,244 decimal, so all that is needed to clear this bug is to use the following POKEs after all the VAL statements in your program.

```
POKE 243,128:POKE 244,5
```

Remember you only need to use this POKE if you are using both VAL and GET functions.

Yours faithfully,
Martin D. Bann

PLEASE WRITE TO US! We get plenty of letters about problems with typing or asking questions but not many general letters that would be interesting for other readers if published. If you have a hint or tip or have discovered something, share it with others. Please make sure that your letter is clearly headed READERS LETTERS.

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RENUM

by Mary Lynch

RENUM will renumber any of your programs with a simple USR call. Programs will be renumbered in increments of 10 starting at line 10. Line numbers embedded in line statements will be taken care of but the program cannot change variables such as LINE=100. These will have to be changed by hand.

The program may be used by disk or cassette users but has been written for a 48k machine. The code is relocatable and the Data in line 230 which refers to the starting location of the routine can be amended for a machine with less memory.

To renumber is simple, just RUN this program, LOAD your program to be renumbered and type in direct mode A=USR(32678). If you have relocated the routine use the new starting location in the USR call.

```
EI 1 REM ******************************
XU 2 REM *            RENUM            *
RQ 3 REM *              by             *
RM 4 REM *         MARY LYNCH          *
EC 5 REM * --------------------------- *
IZ 6 REM *  PAGE 6 MAGAZINE - ENGLAND  *
EO 7 REM ******************************
NN 8 REM
PG 170 READ A1,A2
PZ 180 FOR A=A1 TO A2
BU 190 READ X
EL 200 POKE A,X
CS 210 NEXT A
NV 220 END
HM 230 DATA 32768,33216
BA 240 DATA 104,165,136,133,203,165,137,1
   33,204,160
SI 250 DATA 2,177,203,141,0,6,200,177,203
   ,141
VE 260 DATA 1,6,200,140,2,6,172,2,6,177
FO 270 DATA 203,201,10,240,22,201,11,240,
   18,201
EQ 280 DATA 12,240,14,201,13,240,10,201,3
   5,240
IB 290 DATA 6,201,23,240,2,201,24,240,118
   ,201
BQ 300 DATA 4,208,28,200,177,203,201,14,2
   40,107
MN 310 DATA 238,2,6,172,2,6,204,1,6,240
TY 320 DATA 75,177,203,201,18,208,239,240
   ,88,208
FD 330 DATA 174,201,7,208,34,238,2,6,172,
   2
WF 340 DATA 6,204,1,6,240,50,177,203,201,
   27
JR 350 DATA 208,239,200,204,1,6,240,38,17
   7,203
XO 360 DATA 201,14,240,53,238,2,6,208,153
   ,201
EF 370 DATA 30,208,23,238,2,6,172,2,6,204
SK 380 DATA 1,6,240,12,177,203,201,23,240
   ,27
TP 390 DATA 201,24,240,23,208,233,172,1,6
   ,204
QS 400 DATA 0,6,240,92,177,203,141,1,6,20
   0
PR 410 DATA 140,2,6,208,208,208,168,238,2
   ,6
KX 420 DATA 172,2,6,177,203,201,14,208,22
   3,238
NI 430 DATA 2,6,200,162,0,169,6,133,207,1
   77
AB 440 DATA 203,149,212,232,200,198,207,2
   08,246,32
TQ 450 DATA 210,217,165,136,133,208,165,1
   37,133,209
RT 460 DATA 169,0,133,205,133,206,24,165,
   205,105
HC 470 DATA 10,133,205,165,206,105,0,133,
   206,160
VU 480 DATA 0,165,212,209,208,208,72,200.
   165,213
ZD 490 DATA 209,208,208,65,240,10,240,93,
   240,173
KF 500 DATA 208,169,208,148,240,146,165,2
   05,133,212
EE 510 DATA 165,206,133,213,32,170,217,17
   2,2,6
MB 520 DATA 162,0,169,6,133,207,181,212,1
   45,203
QS 530 DATA 200,232,198,207,208,246,173,2
   ,6,24
ZT 540 DATA 105,6,141,2,6,205,1,6,240,208
SZ 550 DATA 168,177,203,201,18,240,197,20
   8,199,160
LY 560 DATA 2,177,208,24,101,208,133,208,
   169,0
AN 570 DATA 101,209,133,209,160,0,177,208
   ,201,0
ZN 580 DATA 208,140,200,177,208,201,128,2
   08,133,240
AS 590 DATA 201,173,0,6,24,101,203,133,20
   3,169
RK 600 DATA 0,101,204,133,204,160,0,177,2
   03,201
EW 610 DATA 0,208,143,200,177,203,201,128
   ,208,136
IU 620 DATA 165,136,133,203,165,137,133,2
   04,169,0
PJ 630 DATA 133,205,133,206,24,165,205,10
   5,10,133
CJ 640 DATA 205,165,206,105,0,133,206,160
   ,0,165
PU 650 DATA 205,145,203,200,165,206,145,2
   03,160,2
ZT 660 DATA 177,203,24,101,203,133,203,16
   9,0,101
UO 670 DATA 204,133,204,160,0,177,203,201
   ,0,208
RB 680 DATA 209,200,177,203,201,128,208,2
   02,96
```

□



9. MAGAZINE ADVENTURES

If you're a real Adventure addict, you'll be overly aware of the fact that you just can't afford to buy all the two hundred or so Adventures available for the Atari. If you did buy them, you'd soon be flat broke!

So how does the idea of free Adventures sound? Just for a change, let's take a look at all those type-it-in-yourself Adventure listings from magazines.

KIDNAPPED by Peter Kirsch (SoftSide July 1981):
You have been kidnapped! You awaken on the ninth floor of a strange building to find that your kidnapper has left you unattended. You must try to escape from the building one floor at a time. Each floor is independent of the others. You cannot carry items from one floor to another and you cannot return to a previous floor. Everything you need to escape from a given floor can be found on that floor! This makes you feel like you're playing nine mini-Adventures rather than one big Adventure.

Kidnapped was originally written for the TRS-80. The Atari version did not appear until some months later. The puzzles and storyline are fairly simple and this leads me to believe that it may have been one of Peter Kirsch's early attempts at an Adventure. He later became a prolific Adventure writer and was responsible for many of the excellent SoftSide 'Adventure of the Month' series. These later Adventures show much greater depth and originality. Nevertheless, Kidnapped is a lot of fun and is ideal for beginners.

THE CURSE OF THE PHARAOH by Peter Kirsch (SoftSide March 1982):
A curse has been placed on the land following the theft of the two rubies which served as the eyes of the Pharaoh Ickabathan's mummy. You must attempt to break the curse by recovering the lost rubies from within the Pharaoh's pyramid and return them to the mummy.

The Curse of the Pharaoh is an illustrated Adventure. It didn't actually appear as a printed listing in SoftSide, but was included on the Atari Disk Version. Unlike Kidnapped, it was written specifically for the Atari and appears to be an experimental attempt at writing an Adventure with graphics. Although the graphics are crude, it is the only illustrated Adventure I have seen that resides completely in memory and does not require any disk access. It's generally fairly easy and is again suited to beginners.

ESCAPE FROM THE DUNGEON OF THE GODS by Ray Sato (SoftSide #30):
As a member of a band of rebels planning to attack the evil King Safuis II, you have been captured by the King's secret police and thrown into the Dungeon of the Gods. Legends say that the dungeon contains a special chest called the Chest of the Gods which has the power to destroy the king and his forces. Your job is to escape from your cell, find the Chest of the Gods and any other treasures and ultimately escape from the dungeon so that the rebels can use the power of the chest to overthrow the evil King.

Escape from the Dungeon of the Gods was originally written for the TRS-80, but an Atari translation appeared in the same issue. One noticeable feature was that all the string assignments and DATA statements in the listings were encoded to prevent giving away clues as the program was typed in. This was a good idea, but it made typing a real headache and slowed the adventure down during execution. This one will appeal to fantasy lovers.

OPERATION: SABOTAGE by Ray Sato (SoftSide #32):
The aliens from the distant planet Zekloke have established a large military complex on Mars which presents a great threat to Earth. Your job is to sneak into the alien complex and destroy it, but you must also find the plans for a powerful defence shield which are known to be hidden in the complex.

Operation: Sabotage is another program written for the TRS-80 with an Atari translation appearing in the same issue. It was again encoded to prevent giving away clues when the program was typed in and hence suffers the same disadvantages as Escape from the Dungeon of the Gods. Nevertheless, it's worth typing in. This one will appeal to the science fiction freaks, but don't expect anything too deep.

ADVENTURE IN THE FIFTH DIMENSION by Brian Moriarty (A.N.A.L.O.G. Computing Issue 11):
The Declaration of Independence has been stolen from its impenetrable display case by alien beings from the fifth dimension. You are a top-notch private investigator who has been hired by the government to retrieve the Declaration. You must search the city of Washington for clues, find a

by Garry Francis of Sydney, Australia

way into the alien universe, find the Declaration and return it to the police station.

Adventure in the Fifth Dimension is an all text Adventure, but as it is written specifically for the Atari, it runs much faster than the SoftSide Adventures. Moriarty has used a couple of machine language routines to speed up execution and has also used a sensible screen layout. I liked the way it changed colours for different 'dimensions'. Very enjoyable.

CRASH DIVE! by Brian Moriarty (A.N.A.L.O.G. Computing Issue 18):
You are a crewman aboard the USS Sea Moss - a Navy submarine patrolling the North Atlantic - when a routine maintenance job in the forward escape tube saves your life. While locked in the airtight tube, a saboteur gasses the remainder of the crew. It's obvious that someone wants to steal the sub - perhaps for the experimental sonar-jammer that makes the sub 'invisible' to enemy sensors. Your job is to prevent the sub from falling into enemy hands. This entails finding a way to survive the poisoned atmosphere, getting the submarine underwater so that the enemy can't board it and finally destroying it!

Crash Dive! is unique amongst the Adventures reviewed here in that it is written in machine language. It is a great program in every sense - execution speed, playability and display. The latter is very imaginative, though simple, and uses some of the Atari's special features.

HOUSE OF SECRETS by David Blease (Page 6 Issue 10):
You have inherited an old mansion which is rumoured to be built on the remains of a much older building used by an evil warlock. Legend also says that the warlock owned a fortune in gold. Your job is to explore the mansion and attempt to find the gold.

House of Secrets needs no introduction to regular Page 6 readers. It was the giant program from the special Adventure issue and was voted second in the last annual readers' poll. The Adventure itself is a lot of fun, but is let down by words being split in half at the end of lines and some nasty punctuation. XL owners beware! You'll need a translator disk for House of Secrets to run properly because the scrolling routine doesn't work with the XL's display handler. *(There is a small bug but it is still playable on the XL and XE. Ed.)*

ADVENT X-5 by J.D. Casten (Antic November 1984):
You are the sole crew member aboard the Advent X-5, a space ship designed to transport small animals. On the way to Klybex-6, a meteor storm forces you to crash land on Klybex-7. You must get to the emergency shuttle and blast off for the nearest starbase.

J.D. Casten is the author of a couple of Antic's most popular arcade games including the excellent Risky Rescue and its sequel Escape from Epsilon. The arcade games are very good, but I can't vouch for the Adventure as I haven't had a chance to play it yet.

ADVENTURE AT VANDENBERG A.F.B. by Tom Hudson (A.N.A.L.O.G. Computing Issue 27):
As a reporter for the 'Daily Babble', it is your job to follow up on a hot story. In doing so, you overhear some terrorists discussing a plot to destroy the Air Force's newest space shuttle. A bomb has been placed somewhere on the Air Force base and it is set to go off at 9 o'clock - just seconds before the launch. When you report this to the local police station, they won't believe you, (They must have read your stories about Bigfoot being an alien.) So it's up to you to save the space shuttle all by yourself!

Tom Hudson is a long time staff member of A.N.A.L.O.G. and has built up an almost cult following with his numerous tutorials, programmer's aids and especially his machine language arcade games. He was never thrilled about Adventures until he played Brian Moriarty's Crash Dive! He enjoyed it so much that he went back and played Adventure in the Fifth Dimension. He was hooked. Writing an Adventure was obviously the next step and Adventure at Vandenberg A.F.B. is the result. It is based around the same structure as Brian Moriarty's Adventure in the Fifth Dimension and was inspired by the space shuttle complex at Vandenberg Air Force Base. This one's quite hard in the early stages. Be prepared to die a lot!

PORTRAIT DUNGEON by Paul Coppins (Computer & Video Games April 1985):
I haven't played Portrait Dungeon yet. Unfortunately, I can't even tell you what it's about, because I lent the magazine to a friend who promised to type it in. I assume that the author is the same Paul Coppins who assists with Computer & Video Game's Adventure columns, so it should be interesting to see what he comes up with.

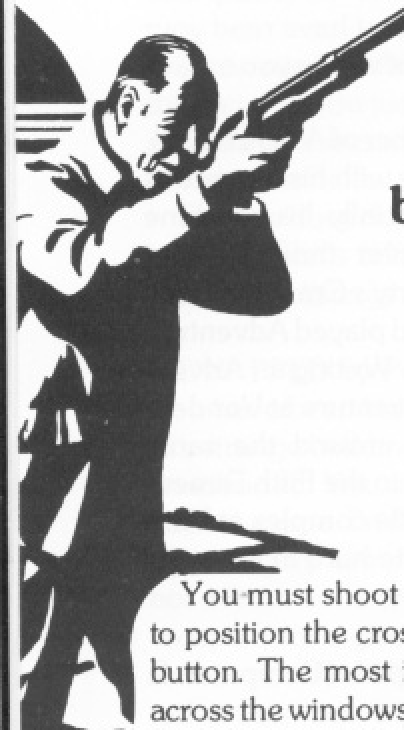
CONCLUSION:

Of the ten Adventures I've come across and reviewed here, I've played eight and found them all to rate somewhere between good and excellent. You may have trouble finding the old issues of SoftSide (as they've gone out of business), but try your utmost to get all the rest, especially the A.N.A.L.O.G. ones because they're great!

I realise there's probably a few more Atari Adventures in other magazines. If you know of any, please send me a copy of the article and program listing. Or better still, send a copy of the program on disk and I'll send you some of the above Adventures in exchange (4 Adventures per disk). Also feel free to write to me about the column. I'd appreciate the feedback.

Garry Francis
Atari Computer Enthusiasts (N.S.W.)
Adventure S.I.G.
G.P.O. Box 4514,
Sydney,
N.S.W. Australia 2001

SHOOTING GALLERY



by Geoff Thompson

You must shoot the moving targets by using the joystick to position the cross over the target and then pressing the button. The most important target is the one that moves across the windows of the house. Hit 15 of these and you go on to the next level, miss 10 and the game is over. The inverse number on the far right of the score line shows the number of misses. The flag and plane are bonuses but you only have 25 bullets per level. The space bar will pause and re-start the game.

TYPING IT IN

Cassette and disk users should type in listing 1. SAVE or CSAVE a copy, then RUN the program. Answer the cassette/disk question accordingly and the program will then check each line of data and create a boot tape or disk version. To load the boot tape, remove all cartridges then turn on the computer while holding down the START key. Disk users should type in listing 2 and save with whatever filename you wish on the same disk as "D:TARGET.OBJ". You can then RUN the program by typing RUN "D:(your filename)".

TARGET PRACTICE should work in 16K cassette systems, but there may be some screen interference when it loads.

```
IS 5 REM SHOOTING GALLERY LOADER
HP 10 OPEN #1,4,0,"D:TARGET.OBJ"
IL 20 POKE 850,7
XY 30 POKE 852,0:POKE 853,53
RO 40 POKE 856,255:POKE 857,255
SO 50 X=USR(ADR("hhh*LVd"),16)
NY 60 CLOSE #1:A=USR(14592)
```

Listing 2

```
EI 1 REM ********************************
XD 2 REM *      SHOOTING GALLERY        *
RQ 3 REM *             by               *
JP 4 REM *        GEOFF THOMPSON        *
TC 5 REM *                              *
ED 6 REM * ---------------------------- *
JA 7 REM *  PAGE 6 MAGAZINE - ENGLAND   *
EP 8 REM ********************************
ZP 9 REM ______ LOADER ROUTINE FROM _____
               ANALOG MAGAZINE
QW 10 TRAP 20:? CHR$(125):POKE 710,0:? :?
   "  CASSETTE (0), OR DISK (1)";:INPUT
   DSK:IF DSK>1 THEN 10
EG 15 DATA 0,1,2,3,4,5,6,7,8,9,0,0,0,0,0,
   0,0,10,11,12,13,14,15
OK 20 DIM DAT$(91),HEX(22):FOR X=0 TO 22:
   READ N:HEX(X)=N:NEXT X:LINE=990:RESTOR
   E 1000:TRAP 70:? :? " CHECKING DATA"
QO 25 TOTAL=0:LINE=LINE+10:? "LINE:";LINE
   :READ DAT$:IF LEN(DAT$)<>90 THEN 180
YO 28 DATLIN=PEEK(183)+PEEK(184)*256:IF D
   ATLIN<>LINE THEN ? "LINE ";LINE;" MISS
   ING!":END
LU 30 FOR X=1 TO 89 STEP 2:D1=ASC(DAT$(X,
   X))-48:D2=ASC(DAT$(X+1,X+1))-48:BYTE=H
   EX(D1)*16+HEX(D2)
JN 40 IF PASS=2 THEN PUT #1,BYTE:NEXT X:R
   EAD CHKSUM:GOTO 25
HC 50 TOTAL=TOTAL+BYTE:NEXT X:READ CHKSUM
   :IF TOTAL=CHKSUM THEN 25
OX 60 GOTO 180
UP 65 IF PASS=2 THEN FOR X=1 TO 78:PUT #1
   ,0:NEXT X:CLOSE #1:END
WF 70 IF PEEK(195)<>6 THEN 180
DF 80 IF PASS=0 THEN 120
GJ 85 IF  NOT DSK THEN 100
YC 90 CLOSE #1:END
CA 100 FOR X=1 TO 78:PUT #1,0:NEXT X:CLOS
   E #1:END
CN 110 ? :? :OPEN #1,8,128,"C:":RESTORE 2
   00:FOR X=1 TO 40:READ N:PUT #1,N:NEXT
   X
LA 120 IF  NOT DSK THEN 140
HK 130 OPEN #1,8,0,"D:TARGET.OBJ":GOTO 15
   0
XK 140 ? :? " READY CASSETTE AND PRESS RE
   TURN":OPEN #1,8,128,"C:":RESTORE 200:F
   OR X=1 TO 40:READ N:PUT #1,N:NEXT X
DI 150 ? :? "WRITING FILE":PASS=2:LINE=99
   0:RESTORE 1000:TRAP 70:GOTO 25
MT 180 ? "BAD DATA: LINE ";LINE:END
PJ 200 DATA 0,21,216,52,0,57,169,0,141,47
   ,2,169,60,141,2,211,169,0,141,231,2,13
   3,14,169,122,141,232,2
MA 210 DATA 133,15,169,0,133,10,169,57,13
   3,11,24,96
```

```
CD 1000 DATA 0000000000000000000000070800
   00000000000000000000000000070800000000
   000000000000000000000000,30
RD 1010 DATA 0000000007010208000000000000
   00000000000000070102080000000000000000
   000000000000000000000007,43
HW 1020 DATA 0102010208000000000000000000
   00070102010208000000000000000000000000
   000000000007010201020102,51
EK 1030 DATA 0800000009000000000701020102
   01020800000000000000000000000000000000
   010201020102010200000009,62
XK 1040 DATA 0000000001020102010201020000
   00000000000000000000000000000201020102
   010201000900000000000002,35
IW 1050 DATA 0102010201020100000000000000
   00000000000000000001020506050601020000
   000900000000010205060506,72
QR 1060 DATA 0102000000000000000000000000
   00000000020103040304020100000009000000
   000201030403040201000000,52
RM 1070 DATA 0000000000000000000000000001
   02050605060102010201020102010201020506
   050601020000000000000000,68
LI 1080 DATA 0000000000000000020103040304
   02010201020102010201020103040304020100
   000000000000000102010201,59
HW 1090 DATA 0201020102010201020102010205
   06050601020102010201020102010201020800
   000002010201020102010201,86
BI 1100 DATA 0201020102010201030403040201
   02010201020102010201020102080000010201
   020102010201020102010201,79
UO 1110 DATA 0201020506050601020102010201
   02010201020102010208000201020506050601
   020105060506020102010304,125
MR 1120 DATA 0304020102010506050602010205
   06050601020801020103040304020102030403
   040102010201020102010201,126
XH 1130 DATA 0203040304010201030403040201
   02020102050605060102010506050602010201
   020102010201020105060506,132
NI 1140 DATA 0201020506050601020101020103
   04030402010203040304010201020A0C0C0B01
   020102030403040102010304,150
RH 1150 DATA 0304020102020102010201020102
   0102010201020102010C0C0C0C020102010201
   020102010201020102010201,114
BI 1160 DATA 0102010201020102010201020102
   010201020C0C0C0C0102010201020102010201
   020102010201020201020102,110
DK 1170 DATA 010201020102010201020102010C
   0C0C0C02010201020102010201020102010201
   020101020102010201020102,109
ZI 1180 DATA 01020102010201020C0C0C0C0102
   01020102010201020102010201020102020102
   010201020102010201020102,110
WE 1190 DATA 0102010C0C0C0C02010201020102
   01020102010201020102010100000000000000
   000000000000000000000000,80
BL 1200 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000,0
BO 1210 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   000000000000000000000000,0
RI 1220 DATA 0000000000000000000000000000
   00000000000000000000000000000000000000
   002065E4A9008DC602A9288D,1221
XF 1230 DATA 07D4A93E8D2F02A2028E6F02E88E
   1DD0A907A23CA0D6205CE4A9C68D0002A93C8D
   0102A9C08D0ED4A9488DC202,4983
IC 1240 DATA A200BD433E9D0030E8E070D0F5A9
   9A8D3002A93D8D3102A9208D00068D01062087
   3CAD1FD02901D00AAD1FD029,4490
OH 1250 DATA 01F0F94C7039AD8402D0EAA9008D
   0106A9028DF302A9778D3002A93D8D3102A200
   A00020DD39A90A8D31068D32,4457
DT 1260 DATA 068D3306A97B8D2A06A9418D2B06
   20873C206F3C20EA39A9008D1ED08D30068D2F
   068D38068D37068D43068D01,3560
NS 1270 DATA D2209E3AAD4306D0FB203D3A20E8
   3A20623B201C3C20B83A20F6394CC339BDB33E
   990206C8E8E028D0F460A900,4886
AY 1280 DATA 8D41068D42068D3F0660AD3C06F0
   26A9008D3C068D1ED0A2098E3B06A90A8D3E06
   20A23CEE4206A9018D3E06A9,3881
MF 1290 DATA 258D3B0620A23C60AD3D06D00160
   A9008D3D068D1ED0A9148D3E06A9098D3B0620
   A23C60A200A010CAD0FD88D0,4371
JO 1300 DATA FA60AD78028D2C068D1ED02901D0
   03CE2B06AD2C062908D003EE2A06AD2C062902
   D003EE2B06AD2C062904D003,3731
KT 1310 DATA CE2A06AD2A06C9CBD003CE2A06AD
   2A06C92CD003EE2A06AD2B06C9E2D003CE2B06
   AD2B06C927D003EE2B06A200,4544
ED 1320 DATA 864DAC2B06BDF83E99002CC8E8E0
   08D0F4AD2A068D00D060AD3F06C919D00160AD
   8402CD2E06F01F8D2E06C900,4912
VT 1330 DATA D018A9208D2D068D4006EE3F06A9
   018D3E06A91D8D3B0620A23C60CE3106F00160
   AD32068D3106AD3006F0034C,3845
UI 1340 DATA 253BAD0AD22907F0F9AABD003F8D
   3506BD083F8D3606A8A9018D3006A200BD103F
   99002EC8E8E00CD0F460EE2F,4772
EL 1350 DATA 06AD2F06C915D029A9008D30068D
   2F068D02D0EE4106AE4106A027BD2B3F990206
   AC3606A2008A99002EC8E8E0,4208
ZS 1360 DATA 0CD0F760EE3506AD35068D02D060
   CE3306F00160AD32068D3306AD3806F0034CC6
   3BAD0AD22901D026A9C88DC3,4763
QH 1370 DATA 02A200A050BD1C3F99002FC8E8E0
   06D0F4A9D28D39068D03D0A9018D37068D3806
   60A200A9888DC302A0778C39,4885
NT 1380 DATA 06BD223F99002FC8E8E009D0F4A9
   7F8D03D0A9018D380660AD3706D037AD3A06D0
   16CE3906AC3906C04ED006A9,4847
OF 1390 DATA 018D3A0660A20020AF3B60EE3906
   AC3906C078D00CA9008D38068D3A0620973C60
   A20020AF3B60CE3906AD3906,3839
RT 1400 DATA 8D03D0C91EF00160A9008D37068D
   380620973C60AD4206C90FD02220EA39A01CA2
   1C20DD39A9018D3E06A9128D,4254
VI 1410 DATA 3B0620A23CCE3206203D3A68684C
   9639AD4106C90AF00160A20BA000B9DB3E9D02
   06C8E8E026D0F4A9FF8D3B06,4755
BS 1420 DATA 203D3ACE3B06D0F868684C4539A2
   808E00D2A9AC8D01D2A9508D3906203D3ACE39
   06D0F860A900AA9D002C9D00,4745
ER 1430 DATA 2E9D002FCAD0F460A900A2869D00
   2FCAD0FA60EE3E06AE3B06CE3E06D00160BD02
   06C919F00869019D02064CA5,4732
PV 1440 DATA 3CA9109D0206CA4CAE3C48A9348D
   0AD48D18D0A9308D09D46840ADFC02C921D00D
   A9FF8DFC02AD430649FF8D43,5181
NY 1450 DATA 06AD4306F0034C62E4AD0106F015
   CE0006D00DA9208D0006ADF30249028DF3024C
   62E4EEC002AD2D06F00D4A4A,4457
AG 1460 DATA 8D03D2A90A8D02D2CE2D06AD4006
   F04BA9008D4006AD0CD02904F021EE3C06A900
   AC3606A200204E3BA9008D30,4186
DQ 1470 DATA 068D2F068D02D0AD32068D31064C
   713DAD0CD0C908D017EE3D0620973CA9008D38
   068D3A068D3706AD32068D33,3807
FU 1480 DATA 0620483A4C62E47070704202 06F0
   70440035040404040404040404040404040404
   04040404040441773D707070,2118
XV 1490 DATA 70707047B73D7070077070707006
   707006700670707002419A3D00000000007400
   610072006700650074000000,2949
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DE RE PIRACY

Confessions of a pirate by L.J. Silver

This article was received anonymously together with two double sided disks of 'unavailable' software and is completely genuine. It is published to highlight many of the problems that have caused ATARI to have so little software support in this country and in the hope that a few owners will think twice if they are offered illegally copied software. ATARI now has the greatest chance it has ever had to make an impact in the U.K. Will you help or hinder?

Piracy must be eliminated now, or more companies will go down, programming talent will be lost and fewer people will want to enter the software industry if it cannot provide worthwhile employment. Piracy can be stopped, or at least diminished, and in this article I hope to point everyone concerned in the right direction for the long-term good of the industry.

I am a software pirate myself, so why am I revealing all this? Well, I am as keen an Atari enthusiast as all of you and I now want Atari to be number one, where it deserves to be. However, the parasitic nature of software piracy will never allow our favourite machines to achieve pole position, unless it is destroyed at source. I could just give the names of all the definite pirates I know of (about twenty - some in respectable positions in computer firms) but I won't - I'd be risking more than losing my hardware! If Atari and the software companies want piracy to end then they must do the work, after all, they were the main cause.

More than five years ago, when the 400 and 800 were still in their infancy, Atari were charging about £30 or more for rubbish like Asteroids. With the lure of advertising most owners were 'stung' by the extortionate prices, whilst the people at Atari smirked as they reaped in millions. The average Atari owner had only a few programs. Then the battles started with Commodore, Texas Instruments, etc. - they reduced their software prices to below £15 but Atari did nothing, they continued at £30 per game. Many owners became fed up with this. A great many moved to other machines and found they could afford three times as much software. Others discovered they could easily copy their friends' tapes and disks since at that time software protection hardly existed. Atari, and other companies, should have supported their customers and sorted out the problems years ago, but they didn't and deserved to go down, losing customers to Commodore on the way. I am sure the new Atari will have learned something from that incident.

More money was spent on protection techniques but all the while the pirates became more proficient at breaking protection and were now able to copy any software easily. If Atari and the software producers wanted to attract customers to buy their software then they needed to reduce prices of ALL software to below £15, or else justify how they can expect users to pay out half the price of a television licence, but it didn't happen until quite late. The effect of the Atari con-trick was that very few national magazines even mention Atari products, many people prefer inferior machines because they are better supported and small companies go into liquidation. Piracy is just the ordinary man's logical reaction to the greediness of the short-sighted software manufacturers.

O.K. WHAT CAN BE DONE?

Firstly, let's see how a pirate obtains software. There are basically three different types of pirate.

(a) There are those who just receive software for their own use - mainly cassette users - and don't have the technical ability to copy software.

(b) Those who provide software to their friends (myself included). We select software that we or our friends want and then get it from a type (c) pirate. We stock no rubbish - disk space is too valuable, so we have only about 200 programs each. We also have many utilities for copying disks, tapes and ROMs and are all disk drive owners primarily responsible for supplying class (a) pirates.

(c) The copiers and suppliers who distribute to (a) and (b). They all have Archiver chips (or similar) fitted to their drives, enabling them to copy any software. They have every utility available for copying. They have most of the games available for the Atari, not just 200 games, more like 200 disks with up to eight games per side. If they don't have your requested game in their vast disk library then they can get it within a week. The copiers gather at each others' homes (or user group meetings) for massive games transfers.

Pirates can get games that will never be released to the public or games two or three months before official release. All of the following were available about three months before the official U.S. release date: Donkey Kong Junior, Millipede, Track and Field, Vanguard, Dimension X, Blue Max 2001, New York City, Quasimodo, Alley Cat, Decathlon, Pitfall II, Zenji, Ballblaster, Rescue at Fractalus, BC's Quest for Tires, Bruce Lee, Spyhunter, Flight Simulator II, Wargames, Frogger II, Stealth, Dropzone, Asylum, Archon II, Ghostbusters, Electrician. Some of the foregoing and many of the following games will probably never be released or have disappeared from the market or turned up for Commodore 64 machines primarily because they have become so widely distributed that the manufacturers do not consider an Atari release worthwhile. You may never see: Pastfinder, Designer's Pencil, Zone Ranger, Last Starfighter, Centipede 16K, Final Legacy, Mario Bros, Atari Soccer, Crystal Castles, Air Support, Mr Do's Castle, Juno First, Up'n'Down, Adventurewriter, Whistler's Brother. All of these are excellent games and *many were obtained from inside Atari and Activision.*

If nothing positive is done to combat piracy then it will inevitably continue until no software companies support Atari machines. Then *everybody* loses. So what can be done? If the software companies really don't know, here are some possible means of bringing the pirates to justice:

The larger companies must together strive for harsher punishments for those who copy and distribute software, e.g. removal of all hardware and software with bankrupting penalties.

Private investigators should be employed who can track down pirates all over the country. The best places to look are at many user group meetings, where all sorts of leads can be obtained. Take a look at ads in national magazines which read 'Atari games swap/sell'. From these you can obtain large lists of software - obviously all copies and all at ridiculous prices. Incidentally the magazines themselves must take a great deal of the blame here for providing one of the major outlets for piracy.

Finally take a look at some of the software hire clubs and at certain of the retail shops in nationally known hi-fi retailers.

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ATARI ST

520ST

POWER WITHOUT THE PRICE

THE NEW ATARI 520ST

Under the new leadership of Jack Tramiel (former boss and founder of Commodore Business Machines), Atari Corporation have marked their entry into the world of business/personal computers with a machine which leaves the competition standing. Tramiel's slogan 'Power Without the Price' has been implemented in the manufacture of the new 512K Atari 520ST colour computer which offers the user amazingly high performance at an incredibly low price. Launched as a work-station, this new system incorporates seven software packages as well as the 520ST computer with 512K RAM, mouse controller, high resolution monochrome monitor (640x400), 95 key keyboard (with 18 key numeric keypad), MIDI interface, GEM and a 500K 3½ inch disk drive, all for the package price of only £651.30 (+VAT = £749). Dubbed the 'Mac beater' and the 'Jackintosh' (after Atari's Chief, Jack Tramiel), Atari's new machine has been directly compared with the Apple Macintosh RRP £2595 (+VAT = £2985) which offers similar features and capabilities but at a much higher price. Favourably reviewed by the UK's highly critical specialist computer press, the 520ST is likely to make a great impact in this country as a sophisticated alternative to an IBM PC, APRICOT or APPLE MACINTOSH. Unlike its overpriced competitors, the Atari 520ST can be linked up to a colour monitor to unleash a choice of up to 512 colours. The addition of colour brings out the full potential of graphics packages such as GEM.

USER FRIENDLY GEM OPERATING SYSTEM

The power of the ST is harnessed and made user friendly by the new operating system 'GEM' from Digital Research. GEM stands for Graphics Environment Manager and allows a user friendly colour or B/W graphics interface which closely resembles that of the Macintosh. This similarity extends to the use of moveable resizeable windows, icons to represent objects such as disks and disk drives, and the use of pull down menus and a mouse. The advantage of all this is that the computer becomes extremely easy to use. GEM has now been implemented for the Acorn, ACT, Atari, IBM, ICL, and Olivetti. Software written for GEM on one computer should also run under GEM on another computer. This will enable the market to quickly produce a large library of standard interchangeable software.

FREE SOFTWARE AND FUTURE EXPANSION

The Atari 520ST comes supplied with seven free software packages as listed below: 1) TOS -Tramiel Operating System based on CPM 68K. 2) GEM Graphics Environment Manager by Digital Research (DR) giving a WIMP (Window, Icon, Mouse, Pull down menu) environment. 3) DR GEM Paint for creating graphics masterpieces. 4) DR GEM Write for word processing. 5) Logo learning language to enable you to write your own programs easily using turtle graphics. 6) DR Personal Basic a powerful user friendly version of the Basic programming language. 7) BOS operating system giving you access to dozens of business applications packages already available on the market. Designed with future expansion in mind, the ST also features a host of different interfaces to the outside world and an impressive list of accessories is planned. Atari will soon be releasing a 1000K (1MB) 3½ inch disk drive, and a 15MB hard disk storage system as well as a mass storage compact disk (CD) player capable of storing an entire 20 volume encyclopedia on one disk. A full range of inexpensive printers are planned including dot matrix, daisywheel and thermal colour printers. With its unbeatable graphics, speed and software at a price which is far below that of any comparable personal computer currently on the market, the ST is all set to do battle with the competition. To receive further details of the ST from Silica Shop, just fill in the coupon below with your name and address details and post it to us.

Silica Shop Price: £651.30 + £97.70 VAT = £749.00 This price includes:

- ***512K RAM***
- ***MOUSE***
- ***GEM***
- ***B/W MONITOR***
- ***500K 3.5" DISK DRIVE***
- ***KEYBOARD (95 KEYS)***

£749

ATARI 520ST SPECIFICATION

MEMORY
512K RAM (524,288 bytes)
16K ROM expandable to 320K
Port for addnl 128K plug-in ROM cartridges
200K TOS operating system

GRAPHICS
Individually addressable 32K bit-mapped screen with 3 screen graphics modes:
320x200 pixels in 16 colours (low resolution)
640x200 pixels in 4 colours (med resolution)
640x400 pixels in monochrome (high res)
16 shades of grey in low res mode
512 colours available in low/medium res
8 levels of each in red, green and blue

ARCHITECTURE
4 custom designed chips:
GLUE Chip - MMU Memory Mngmnt Unit
DMA Controller - Graphics Processing Unit
16/32 bit Motorola 68000 processor at 8MHz
eight 32 bit data registers
eight 32 bit address registers
16 bit data bus/24 bit address bus
7 levels of interrupts/56 instructions
14 addressing modes/5 data types

DATA STORAGE
High speed hard disk interface
Direct memory access 1.33 Mbytes per second
CD (Compact Disc) interface
Built in cartridge access
Dedicated floppy disk controller

DISK DRIVE
500K (unformatted) s/sided 3½" floppy d/drive
349K (formatted) storage capacity

SOUND AND MUSIC
Sound Generator
Frequency control from 30Hz to above audible
3 voices (channels) in wave shaping sound in addition to a noise generator
Separate frequency and volume controls
Dynamic envelope controls
ADSR (Attack, Decay, Sustain, Release)
Noise generator
MIDI interface for external music synthesizers

KEYBOARD
Separate keyboard microprocessor
Standard QWERTY typewriter styling
Ergonomic angle and height
95 keys including 10 function keys
Numeric keypad — 18 keys including ENTER
One touch cursor control keypad

MONITOR
12" screen - high res monochrome monitor
640x400 monochrome resolution

VIDEO PORTS
Display - Low Resolution - 40 columns
Med/High Res - 40/80 plus cols
Medium res RGB (Red/Green/Blue) output
High resolution monochrome (Black & White)

COMMUNICATIONS
Bidirectional centronics parallel interface for printers, or modems capable of input/output
RS232C serial modem/printer interface
VT52 Terminal Emulation Software
Maximum Baud Rate up to 19,200
High speed hard disk interface
Floppy disk controller (Western Digital)
2 joystick ports (one for 2 button mouse)
MIDI interface for external music synthesizers

GEM WIMP ENVIRONMENT
WIMP - Window Icon Mouse Pop-down menus
Two button mouse controller
Icons/Pull down menus/Windows
GEM VDI - Virtual Device Interface
GEM AES - Application Environment Services
GEM BBT - Bit Block Transfer
Real time clock & calendar

SOFTWARE
GEM environment
with user friendly Macintosh style operation
'TOS' - Tramiel Operating System
Atari's own system based on CP/M 68K with hierarchical directory & file structure plus a host of MS DOS & UNIX command structures
'BOS' - Business Operating System
to run any standard BOS business programs
GEM desktop
with GEM PAINT graphics mgmt system and GEM WRITE word processor
Personal BASIC and DR Logo
originally written by Digital Research (DR) Very much like those on other machines except for the extensive use of pull down menus, mouse control and windows

VARIOUS
Dimensions: 470mmx240mmx60mm
Replaceable external power supplies
Expansion: 3½" floppy disk drives 500K/1,000K
(two drives can be connected)
3½" 15Mb hard disk
CD (compact laser disc)
Dot matrix & d/wheel prntrs (black)
Thermal dot matrix (colour)
RGB & monochrome monitors

LANGUAGES
BASIC & LOGO supplied
Many others will soon be available, including Assembler, BCPL, C, Cobol, Compiled Basic Lisp, Modular-2 and Pascal

Note: Some of the above specifications are pre-release and may therefore be subject to change

MACINTOSH v F1e v 520ST

"Imagine a Fat Mac - the 512K Apple Macintosh - but with a bigger screen, a far bigger keyboard with numeric keypad, cursor and function keys, and colour. That gives you some idea of what the Atari 520ST is like, except for two important things. First the Atari seems faster. Second the Atari system is about one third of the price."
June 1985 - Jack Schofield - **PRACTICAL COMPUTING**

	APPLE	APRICOT	ATARI
FEATURES OF BASIC SYSTEM	MACINTOSH	F1e	520ST
Price Includes B/W Monitor	YES	NO - extra £200	YES
Keyboard size mm (LxDxH)	330x147x50	450x167x28	470x240x60
Keyboard size ins (LxDxH)	13x5¾x2	17½x6½x1	18½x9½x2½
3½" D/Drive (Unformatted)	500K	500K	500K
3½" D/Drive (Formatted)	399K	315K	349K
WIMP (Window, Icon, Mouse ...)	Apple	ACT - Activity	GEM
Real-time Clock	YES	YES	YES
Polyphonic Sound Generator	YES	NO	YES
RS232 Serial Port	YES	YES	YES
Centronics Parallel Printer Port	NO	YES	YES
Dedicated Floppy Disk Controller	NO	YES	YES
Hard Disk DMA Interface	NO	YES	YES
Full stroke keyboard	YES	YES	YES
Number of keys on keyboard	59	92	95
Numeric Keypad	NO	YES (16 Keys)	YES (18 keys)
Cursor Control Keypad	NO	YES	YES
Function keys	NO	10	10
16-bit processor	68000	Intel 8086	68000
Processor running speed	8MHz	4.77MHz	8MHz
RAM size	512K	256K	512K
Number of graphics modes	1	4	3
Number of colours	Monochrome	16	512
Max Screen Resolution (pixels)	512 x 342	640 x 256	640 x 400
Mouse included	Single Button	NO - extra £95	Two Button
Replaceable External Power Pack	NO	NO	YES
Cartridge Socket	NO	NO	YES
Joystick Ports	NO	NO	YES (two)
MIDI Synthesiser Interface	NO	NO	YES
Monitor Size	9"	9" - extra £200	12"
RGB Video Output	NO	YES	YES

System Cost with: Mouse - Monochrome Monitor - 512K RAM - 500K Disk Drive

Price of basic system (exc VAT)	£2595+VAT	£595+VAT	£652+VAT
+ Mouse	Included	£95+VAT	Included
+ Monochrome Monitor	Included	£200+VAT	Included
+ Expansion to 512K RAM	Included	£295+VAT	Included
Price of complete system (exc VAT)	£2595+VAT	£1185+VAT	£652+VAT
PRICE rounded down including VAT	**£2,984**	**£1,362**	**£749**

PRESS COMMENT

"Atari's new corporate image as an aggressive low cost computer maker is likely to mirror that of Commodore where Mr. Tramiel established the maxim that 'Business is war'."
August 21st 1984 **FINANCIAL TIMES**

"This is the only personal computer I know of that comes with a Midi interface as standard."
Peter Bright March 1985 **PERSONAL COMPUTER WORLD**

"The (GEM) version running on the Atari 68000 machines will have the additional advantage of leaving the PC version standing." April 6th 1985 **PERSONAL COMPUTER NEWS**

"It would seem that GEM offers the ideal operating system."
March 7th 1985 **POPULAR COMPUTING WEEKLY**

"I found it (GEM) extremely easy to use and was very impressed with the way in which it disguises the unfriendly hardware and operating systems lurking under the surface.".
Peter Bright Feb 1985 **PERSONAL COMPUTER WORLD**

"The electronics in the machine are a work of art ... The heart of the 520ST is a Motorola 68000, one of the most powerful 16-bit processors around and in many respects it is close to being a 32-bit chip ... when the machine appears in the shops, I'll be at the front end of the queue to buy one."
Peter Bright June 1985 **PERSONAL COMPUTER WORLD**

"This machine is significantly more powerful than an IBM PC ... If it's possible to design a sure-fire winning machine, this is it."
May 11th 1985 **PERSONAL COMPUTER NEWS**

"... the use of GEM makes the new range of Atari computers so similar to the Macintosh (with the added attraction of colour), that they are already being called 'Jackintoshes'."
May 2nd 1985 **COMPUTING**

"The new Atari ST computers truly represent to the consumer what Jack Tramiel is saying — easy-to-use computing power without the price." March 1985 **ANALOG COMPUTING**

"It (the ST) uses the most modern technology that is affordable, in a package that gives a professional impression."
May 23rd 1985 **POPULAR COMPUTING WEEKLY**

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Superscript

Precision Software Ltd.



for 800XL and 130XE

There are something like a dozen word processors available for the Atari micros, at least there are if you know where to get them, so do Atari users need another one? The answer is yes, provided it is good, easily available and at the right price. Does Precision Software's Superscript fit the bill? Again the answer is yes. In fact for the serious Atari user I would go so far as to say that Superscript is the most important piece of software to have been produced so far by a British company.

Although there are many word processors the only one that has been widely available and the one with which most users are familiar is Atariwriter and Superscript beats Atariwriter hands down. Superscript gives you not only powerful text manipulation, but also a unique facility to define your own printer driver using a simple text document plus a built in spelling checker with a British dictionary. It is a powerful program and comes with a pretty hefty manual which is needed to understand all of its features.

FOR 800XL AND 130XE

First of all take note that Superscript is written for the 800XL and the 130XE. Read that literally, *it will not work on the 400 or 800.* The reason is simply that it takes full advantage of the XL and XE facilities and offers full international characters, including that elusive £ sign on screen. In addition it is the first program that I am aware of to take advantage of the extra 64k in the 130XE by allowing two documents to be worked on in memory at the same time. More about this later. The first thing you need to do with Superscript is to sit down and work through the tutorial which is essential if you want to use the program to the full. It is possible to compose simple documents by just following the screen prompts, but ignore the manual and you will miss out on many powerful features.

So, boot up Superscript and you will be prompted to Insert an Existing Work Disk, Create a Training Disk, Create a New Work Disk or Create a Dictionary Disk. The dictionary disk is easily created, it is just copied from the back of the master disk onto a disk of your own and may as well be created at the same time as your Training Disk. Select Create a Training Disk and several files which give exercises to be used with the tutorials will be copied onto your disk. The Training Disk and the normal Work Disk primarily contain a 'Defaults' file which is booted each time to set up the printer driver and certain program parameters which are completely user defined. You can set screen and text colours, margins, standard printing features, screen width or even assign special features to any key on the keyboard and boot these in as standard every time you use your work disk. More of these later, let's go back to the tutorial.

THE TUTORIAL

You start by loading in a letter to use as practice for the standard features of editing and to learn how to view and print documents which is fine for beginners and will get you used to using a word processor. Experienced users could skip this but may miss out a few tips to short cuts in using Superscript by doing so. The tutorial then goes on to 'Cut and Paste' editing which simply means moving blocks of text around from single words to whole paragraphs before introducing one of the really powerful features of Superscript - the ability to do mathematical calculations on tables within the text.

Here also is introduced another fine feature. Atariwriter is limited to a 40 column screen and it is virtually impossible to set out any sort of table without much trial and error. Superscript allows you to define the width of the text screen to a maximum of 240 columns and will scroll across and back as you reach the screen limits. Tables could not be simpler, you just type them exactly as you want them to appear on paper.

MATHEMATICAL FEATURES

Using the mathematical features seems at first quite complex but a sample document is included and once mastered the technique is simple yet powerful. Each column in a table is defined as a numerical tab at the position of the decimal point, which incidentally can be set as desired, and figures are entered by tabbing across and pressing RETURN at the end of the line. Enter as many rows as you wish and finish off with a row of dashes and you are ready to calculate totals. Simply place the cursor at the end of a line, enter a few keystrokes and the line total will be entered in the final column. Calculate each line in this way and then place the cursor at the foot of the table. A few more keystrokes and every column in the table will be totalled automatically! Any figures included in brackets or with a minus sign will be subtracted and the program has facilities for division and multiplication as well. In fact all of the commands to calculate a table can be included in a format and can be executed with just two keystrokes. There is an example included in the tutorial. Just run it and watch, you'll be amazed!

MAIL MERGE

Next comes Mail Merge which allows you to take a standard letter and 'personalise' it by automatically inserting names and addresses or other information within the standard letter. An example is again provided. The procedure is somewhat lengthy but once set up is easy to use. Your letter is composed as one file and the information you wish to insert, in the example names and addresses, is composed simply as another text file. You then simply insert markers in your letter, which can be conditional, and start printing. This is where the 130XE is used to good advantage for you can have your letter in the upper half of memory with the merge information in lower memory thus eliminating disk access.

The use of conditional markers makes the mail merge another powerful feature. You can for instance set up a file, or multiple files, containing a full list of contacts or addresses with as much detail as you wish and then print letters to them according to conditions laid down in your main letter. You could for instance write only to those in London or you could exclude London addresses. You could write only to male or female contacts or, if you keep your contact

file up to date, only to people who have expressed an interest in a particular product or service. It is obviously not as powerful as a full database program but for simpler situations is more than adequate.

The tutorials finish here but the majority of the manual is unread! There is more that you can do with Superscript! Let's take a look now at the editing features as controlled by the keyboard. At first sight any action seems unnecessarily complex requiring the SELECT key to be pressed followed by selection of the feature required and then selection from a sub-menu. In some cases a further menu is presented. If you don't study the manual you could waste a lot of time performing almost any function but once you have executed a particular action, no matter how complex, it can be repeated by simply pressing CONTROL-R. In fact most of the commonly used editing features can be accessed by using CONTROL with an appropriate character. There are several really neat features here such as changing words between upper and lower case. CONTROL-F will change a word from upper to lower case but on first press will leave the initial letter as a capital in case it is the start of a sentence. Press again and this turns to lower case. If you prefer to use the cursor movement keys without holding CONTROL simply change them so that the cursor movement is standard and the arithmetical signs are accessed with CONTROL!

USER DEFINED KEYS

What if you need to repeatedly use a series of commands? Easy, just assign these commands to any key on the keyboard in either upper or lower case. Press ESC followed by the key and the program will perform the action you have assigned. Almost anything can be assigned to a key from passages of text to single commands or series of commands. Your name and address for instance can be inserted in a document with two or three keystrokes. It can even be automatically centred or ranged right. Often used words can be inserted at a stroke or the cursor can be moved as desired. Several examples are given in the manual but the applications are limited only by your imagination. Suppose for example you often transpose two characters. Simply assign a key to reverse them, place the cursor on the first character and change them about. You can change disk drives, obtain a directory, initiate a search, exchange dates and much more. All that seems quite powerful, but the real beauty lies in the fact that every key stroke you define can be made permanent so that the keyboard is configured to your specification each time you boot up a work disk. If you wish you can have different configurations for different tasks and change midway through a session. You may not appreciate the power until you have used it, but what it basically means is that Superscript is not a program to which you need to adapt but a program which adapts to you. Your working version of Superscript will be exactly that, your own personalised program.

LAYOUT FEATURES

Before I go on to the search and replace functions and spelling checker, a brief word about the layout capabilities as regards the printed document. All the expected facilities such as setting margins and page lengths, centering and justifying text, including headers and footers are there as well as page numbering but a few more features are included. Margins as well as page numbers can be offset alternately so that if you are producing a bound document the wider margin will always be in the centre of the pages. To produce a double-sided document you can print odd numbered pages first, turn the paper and then print even numbered pages. Four levels of indent can be set and released as desired allowing hanging indents, such as you see in numbered paragraphs, to be easily produced. A nice report is included on the training disk to illustrate many of these features.

SEARCH AND REPLACE

One of the useful features of a word processor is the ability to find words quickly throughout the document and replace or amend them and Superscript naturally has this feature. You may change all occurences of a word or verify each change or simply find a particular word to position the cursor for editing. It was here that I found one of the few limitations of Superscript as it cannot search for spaces. I often used Atariwriter to check for and replace inadvertent double spaces in a document. A useful feature of the Search facility is to search forward or backward so you do not need to go to the start of the document for multiple searches.

THE SPELLING CHECKER

So now let's assume that you have typed your document. Before you print it you will want to make sure that the spelling is correct so a few keystrokes (or assigning these to a particular key) brings the spelling checker into action. If you have two drives insert the spelling checker into drive 2 and the program will look for it first in drive 1 and then in drive 2. If it is not in either you will be prompted to insert it. The first action is to analyse your document. You will be told how many words have been used, how many sentences there are and how many paragraphs as well as the average word length. Then the spelling will be checked in alphabetical order throughout the document. This method is slow but it works well and incorrect or unrecognised words will be highlighted for action as they are reached. You may either accept the word in which case all further occurences will be ignored, ignore the word so that it will be flagged again if found or have the program learn the word and insert it in the dictionary for future use. Words which you use often can thus be added to the dictionary automatically so that each time you use the spelling checker, its vocabulary expands. If a word is incorrect you simply edit it and resume the check. When it is finished you can replace the original document on disk with one keystroke. One point to bear in mind is that, being a British program it checks for English and not American spellings!

The spelling checker has other uses. You can use the disk as a straight dictionary. If you don't know how to spell a word just look it up by typing the first few characters and you will be shown all of the words that begin with those characters. Whilst the program cannot check grammar, you can display all of the words used with their frequency so that you can see if for example you have used 'nice' or 'great' too many times.

CONCLUSIONS

Superscript's manual is several times the size of this magazine so you can see that it is possible only to scratch the surface in a review. The program was originally written for the Commodore but the Atari version is no straight 'dump' to another computer. In fact Precision Software have produced a remarkable program especially since the first time they touched an Atari was only four months before producing this version of Superscript. In that short time they have discovered and used more of the facilities of the XL and XE computers than many of the well established companies in the States that have been writing for Atari for years. I will finish by repeating that for the serious user this is the most important program to appear this side of the Atlantic. It heralds the final recognition of the Atari as a serious computer, something we have known all along.

Superscript is scheduled to retail at £69.95 - the same price as the Commodore version. If you think that is expensive compare it with Atariwriter at £39 plus a printer driver at £20 and a spelling checker at £30. You will save £20 and believe me you will get much more for your money. ●

GETTING UP TO ANTICS

a tutorial on

by Steve Pedler

Most owners have heard of Atari's ability to re-define characters even if they are not sure how it is done. Character graphics are a quick, versatile and memory efficient way of developing game playfields and simple animation. In this article I will show you how to use two of the least understood of the text or character modes.

One problem with using character graphics is that the best looking characters are only available in Graphics 0, which only allows one colour. In Graphics 1, characters can be any one of four colours, but the loss of resolution makes them look rather chunky. What would be most useful would be a graphics mode with the resolution of Graphics 0 but with more than one colour available, preferably without using extra memory. It would be even better if the characters themselves could be made up of more than one colour. Well, believe it or not just such a mode is available on the Atari. It is known as Antic 4 or on the XL and XE machines as Graphics 12. Antic 5 (Graphics 13) is a similar mode but with less resolution. These modes are used extensively in commercial games, but for some reason tend to be less used by the ordinary Atari user. I suspect that this is partly due to lack of awareness of the existence of these modes and partly due to the need for a little extra programming in order to use them.

Why Antic 4 and 5? As many of you know, Antic is the chip inside the Atari directly responsible for producing the display on the TV screen. It recognises 14 different graphics modes (numbered 2-15 by Antic) plus the three GTIA modes, but unfortunately not all of these modes are directly available from BASIC, at least in the 400/800. I understand that all but one of these modes can be called from BASIC in the XL models, however all the programs in this article should work equally well on both XL, XE and older machines. Antic 4 and 5 can therefore be termed as two of the 'hidden' modes. The other three are Antic 3, 12, and 14 and would perhaps be a suitable subject for another article.

How then do we get into these modes? Antic is told how to display data on the screen by means of a set of instructions called the Display List. This isn't intended to be an article on display lists as such (yet another article!) so suffice it to say that to use Antic 4 or 5 we must either set up our own Display List or modify an existing one. (XL or XE users can simply use a Graphics 12 or 13 statement).

Antic 4 is similar to Graphics 0 in screen format and memory requirement so to use it we merely change the existing Display List. We can find the start of the list easily enough by PEEKing memory locations 560 and 561.

```
DG 5 REM ANTIC MODES LISTING 1
LP 10 GRAPHICS 0
SU 20 DL=PEEK(560)+256*PEEK(561)
TX 30 POKE DL+3,68:FOR J=6 TO 28:POKE DL+
   J,4:NEXT J
YX 40 LIST
```

Listing 1

```
EH 5 REM ANTIC MODES LISTING 2
LF 10 FOR J=0 TO 23:READ N:POKE 1536+J,N:
   NEXT J
RP 20 GRAPHICS 1:POKE 1536+4,PEEK(88):POK
   E 1536+5,PEEK(89):POKE 1552,PEEK(660):
   POKE 1553,PEEK(661)
MR 30 POKE 560,0:POKE 561,6:POKE 87,0
OR 35 FOR J=0 TO 9:POSITION 0,J
MI 40 ? #6;"ANTIC MODE 5"
JL 45 NEXT J
YT 50 END
OP 100 DATA 112,112,112,69,0,0,5,5,5,5,5,
   5,5,5,5,66,0,0,2,2,2,65,0,6
```

Listing 2

```
FI 5 REM ANTIC MODES LISTING 3
TO 10 GOSUB 1000:GOSUB 1200
WK 50 RAMTOP=PEEK(106):POKE 106,RAMTOP-8
NQ 60 GRAPHICS 0:DL=PEEK(560)+256*PEEK(56
   1)
II 70 POKE DL+3,68:FOR J=6 TO 23:POKE DL+
   J,4:NEXT J:POKE DL+24,132
LK 80 OURCHAR=(RAMTOP-4)*256:A=USR(1664,O
   URCHAR):GOSUB 1400:POKE 756,RAMTOP-4
BD 90 POSITION 2,18:? " A A a a ┣ ▌: "
XU 95 POSITION 2,21:? " A A a a ┣ ▌: "
LG 100 GOTO 100
WO 1000 RESTORE 1100:FOR J=0 TO 33:READ N
   :POKE 1664+J,N:NEXT J:RETURN
YW 1100 DATA 104,104,133,215,104,133,214,
   169,224,133,213,169,0,133
RJ 1105 DATA 212,162,4,160,0,177,212,145
WA 1110 DATA 214,200,208,249,230,213,230,
   215,202,208,242,96
WJ 1199 REM DLI SET-UP
OF 1200 POKE 54286,192:POKE 513,6:POKE 51
   2,164:RESTORE 1220
GU 1210 FOR J=0 TO 25:READ N:POKE 1700+J,
   N:NEXT J
IX 1220 DATA 72,169,224,141,10,212,141,9,
   212,169,148,141,24,208,169,202,141,23,
   208,169,0,141,26,208,104,64
AM 1230 RETURN
HP 1399 REM NEW CHARSET DATA
TK 1400 RESTORE 1500:FOR J=0 TO 7:READ N:
   POKE (OURCHAR+33*8)+J,N:NEXT J
UM 1410 FOR J=0 TO 7:READ N:POKE (OURCHAR
   +97*8)+J,N:NEXT J
MV 1420 FOR J=0 TO 7:READ N:POKE (OURCHAR
   +65*8)+J,N:NEXT J
BN 1500 DATA 0,252,204,204,252,204,204,0
NQ 1510 DATA 0,84,68,68,84,68,68,0
BZ 1520 DATA 0,168,136,136,168,136,136,0
AS 1530 RETURN
```

Listing 3

Antic modes 4 and 5

Without further ado therefore, type in and run Listing 1.

Notice that the default background colour to Antic 4 is black. Notice also that you can't read the characters! Why this should be so we will discuss later. In all other respects Antic 4 is treated as Graphics 0 by the Operating System and all of the screen editing and cursor control features will work normally. You will stay in this mode until you do another Graphics call or press System Reset.

Antic 5 is a little more difficult. The problem is that there is no other mode available with equivalent resolution. Graphics 1 has 20 x 20 resolution giving double width characters, plus a text window, while Graphics 2 has 20 x 10 resolution giving double width, double height characters. Antic 5 however has 40 x 10 resolution (normal width, double height characters), assuming a text window is added. The easiest solution is to construct your own Display List and place it in a protected area of memory such as page six. To do this, type in and run Listing 2.

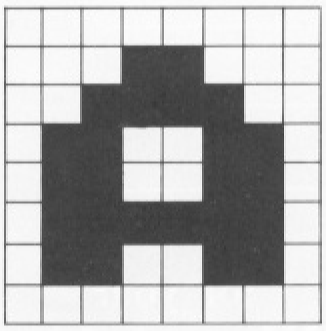
A brief word concerning this program may be helpful. Line 10 reads the data for the new Display List and POKEs it into page six of memory. The only data we don't have is the starting location of screen memory and of the text window memory, and this is represented by the zeroes in line 100. Graphics 1 needs the same amount of memory as Antic 5 (even though the screen format is different) and calling Graphics 1 in line 20 automatically allocates the correct amount of RAM. Locations 88 and 89 point to the start of screen RAM, and 660 and 661 point to the start of text window memory. The values in these locations are then POKEd into the appropriate places on page six. Line 30 redirects the Display List pointer to our new list. One further problem is that although we know that 40 characters can be printed per row, the Operating System thinks it is in Graphics 1 (from line 20) and will only allow 20 characters to be printed per line. We can trick the computer into thinking it is in Graphics 0 (40 characters per row) by POKEing 87 with zero, which allows us to use this mode fully. Having opened channel 6 to the screen by the Graphics call in line 20, we must use this channel to print onto the Antic 5 part of the screen. One final snag to watch for here - only 10 rows are available for printing (not counting the text window) but the OS, thinking it is in Graphics 0, will allow you to print up to 24 rows without returning Error 141 - cursor out of range. Attempting to print outside of this 10 row limit may cause interference with the OS RAM below screen memory, causing a program crash.

Let us return to why the text is not readable in these two modes. As you know Atari characters are constructed on a grid of 8 x 8 pixels. Each pixel can either be 'on' or 'off' (i.e. lit or unlit), so that the letter 'A' for example would be made up

continued overleaf

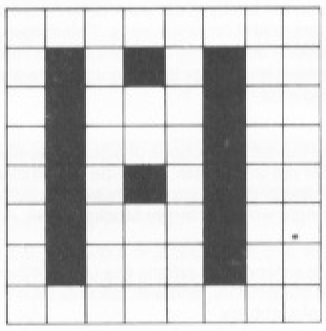
Getting Up to Antics continued

like this:



In Antic 4/5 however, each character is constructed on a 4 x 8 grid, with each pixel being twice as wide as a Graphics 0 pixel (technically, one colour clock wide). Either half of the pixel may be lit independently of the other, so that the pixel may also determine colour. The pixel configurations and the colour registers used are shown in Table 1.

Using this chart, you should be able to define your characters in any desired colour or combination of colours. If you look at the above diagram of 'A' in this light, you will see that although retaining the shape of the letter, the character is in a mixture of different colours, making it difficult to read. Antic 4/5 characters must be designed to take this into account. The letter 'A' in Antic 4/5, Setcolor 0, should look like this for example:



In order to use other colour registers it would of course be necessary to define the letter in a different fashion.

One problem with re-defining characters is that they will no longer be readable in Graphics 0. This is unfortunate if your programs use on-screen prompts or user inputs that you want to be readable. However, we can change the characters back to the original set in mid-screen by using a Display List Interrupt. Listing 3 is an example of character re-definition and a Display List Interrupt to set up Antic 4 with four lines of Graphics 0 at the bottom of the screen. It re-defines the characters A, a, and Control-A as upper case 'A' in three colours, and then prints them and their inverse video counterparts to the Antic 4 screen. It also prints them to the Graphics 0 window to show the use of the DLI.

The DLI also restores the default background, border, and character luminance colours so that you can alter the colour registers as much as you like without making the text unreadable. The DLI itself and the machine code routine to move the old character set into RAM are kept as separate subroutines for use in your own programs.

Note that the screen does not have a true text window. Anything printed here will normally scroll into the rest of the screen with further inputs or prompts but line 100 prevents this. To see the effect, press BREAK and then RETURN several times.

```
GJ 5 REM ANTIC MODES LISTING 4
NR 55 RESTORE 65
LK 60 FOR J=0 TO 23:READ N:POKE 1536+J,N:
   NEXT J
HW 65 DATA 112,112,112,69,0,0,5,5,5,5,5,5
   ,5,5,133,66,0,0,2,2,2,65,0,6
RU 70 GRAPHICS 1:POKE 1536+4,PEEK(88):POK
   E 1536+5,PEEK(89):POKE 1552,PEEK(660):
   POKE 1553,PEEK(661)
NF 75 POKE 560,0:POKE 561,6:POKE 87,0
AR 90 POSITION 2,8:? #6;" A ▣ a ▣ ┣ ▌: "
BS 95 ? :? " A ▣ a ▣ ┣ ▌: "
```

Listing 4

```
HK 5 REM ANTIC MODES LISTING 5
II 1500 DATA 0,92,76,76,92,76,76,0
YU 1510 DATA 0,172,140,140,172,140,140,0
IH 1520 DATA 0,148,132,132,148,132,132,0
```

Listing 5

The program will need to be changed for Antic 5. Substitute the lines in Listing 4 for their counterparts in Listing 3.

Two points to note. Firstly, the characters don't look as good as they do in Graphics 0, because we are defining them with less resolution (4 x 8 as opposed to 8 x 8 pixels). Secondly, note the curious way in which inverse video is treated. Those pixels used with only one half of the pixel lit are unaffected, but those with both halves lit (using Setcolor 2) change colour (to Setcolor 3) in inverse video. This gives us four colours on screen, but only three in any one character.

So far, I have made no mention of the best feature of these modes - the ability to use characters consisting of up to three colours. For a brief example, substitute the lines in Listing 5 for their counterparts in Listing 3. You should see each letter 'A' appear in two colours.

I appreciate that 'A' in two colours is not the most exciting thing you've ever seen, but bear with me a moment. Of course, if you want full multicolour text on your Atari, you will have to redesign all the characters. I will leave this for you, but note two things. Firstly, you will lose some of your character set - whichever you choose to redesign. In the above example, we lost the lower case and Control-A characters. Secondly, design is greatly helped by a character generator utility which supports Antic 4/5, my own personal favourite is 'Magic Window' from Quicksilva. The best

Pixel configuration	Setcolor	Register	Default colour
□■	0	708	orange
■□	1	709	green
■■	2	710	dark blue
■■ (inverse	3	711	red/purple
□□ (background)	4	712	black

Table 1

```
IL 5 REM ANTIC MODES LISTING 6
LL 87 GOTO 2150
JX 1400 RESTORE 1500
VQ 1410 FOR J=0 TO 511:READ N:POKE OURCHA
   R+24+J,N
EF 1420 NEXT J:POKE 708,24:POKE 709,214:P
   OKE 710,14
ZZ 1500 DATA 0,0,0,0,0,0,0,0
CA 1510 DATA 0,0,0,0,0,0,0,2
CA 1520 DATA 0,0,0,0,0,0,0,170
CX 1530 DATA 0,0,0,0,0,252,252,170
CG 1540 DATA 0,0,0,0,0,0,0,170
DD 1550 DATA 0,0,0,0,0,252,252,170
EQ 1560 DATA 12,13,13,13,13,12,12,170
CW 1570 DATA 0,85,85,85,85,0,0,0
IC 1580 DATA 0,0,85,21,5,1,0,0
JF 1590 DATA 2,2,85,85,85,85,85,21
WA 1600 DATA 170,170,85,85,85,85,85,85
EB 1610 DATA 10,170,85,85,85,85,85,85
EE 1620 DATA 10,170,85,85,85,85,85,85
EH 1630 DATA 10,170,85,85,85,85,85,85
EK 1640 DATA 10,170,85,85,85,85,85,85
LQ 1650 DATA 0,0,85,85,85,85,84,80
AT 1660 DATA 0,0,0,0,0,0,0,0
AW 1670 DATA 0,0,0,0,0,0,0,0
BE 1680 DATA 0,0,0,0,0,2,10,40
DX 1690 DATA 0,0,0,0,0,128,0,0
AD 1700 DATA 0,0,0,0,0,0,0,0
YZ 1710 DATA 0,0,0,0,0,0,2,10
YY 1720 DATA 0,0,2,10,42,187,187,187
WP 1730 DATA 0,168,168,168,168,184,184,18
   4
XP 1740 DATA 0,42,170,170,169,169,1,0
RJ 1750 DATA 0,170,170,90,86,86,84,80
EL 1760 DATA 160,128,170,170,170,170,0,0
RG 1770 DATA 0,0,170,170,170,170,0,0
SJ 1780 DATA 0,2,170,170,170,170,0,0
PT 1790 DATA 42,171,175,170,170,170,0,0
AD 1800 DATA 251,235,171,165,149,149,21,5
OO 1810 DATA 188,175,171,170,106,106,64,0
DT 1820 DATA 0,0,0,0,255,0,0,1
QF 1830 DATA 0,0,0,0,255,0,0,85
UA 1840 DATA 0,0,0,0,255,2,2,85
KK 1850 DATA 0,0,10,170,170,170,170,85
EG 1860 DATA 0,0,170,170,170,170,170,85
JL 1870 DATA 0,0,160,168,170,170,170,85
SM 1880 DATA 0,0,0,0,0,0,128,85
IY 1890 DATA 0,0,0,0,0,0,0,84
FE 1900 DATA 5,21,21,85,86,14,3,0
SK 1910 DATA 85,85,85,169,170,170,168,255
PY 1920 DATA 85,85,85,85,85,40,40,255
DH 1930 DATA 85,85,85,85,85,162,162,255
KO 1940 DATA 85,85,85,85,85,138,138,255
QH 1950 DATA 85,85,85,85,85,40,40,255
HH 1960 DATA 85,85,85,106,170,170,42,255
JB 1970 DATA 85,85,85,85,148,176,192,0
MJ 1980 DATA 0,0,0,192,195,197,199,245
BH 1990 DATA 0,2,0,0,255,85,255,85
QS 2000 DATA 0,170,8,8,8,88,89,89
WK 2010 DATA 0,170,2,2,2,2,6,86
RY 2020 DATA 0,168,0,0,0,85,85,85
DQ 2030 DATA 0,0,0,0,0,85,85,85
HK 2040 DATA 0,1,1,5,5,85,85,90
NW 2050 DATA 84,85,85,85,85,85,85,169
NP 2060 DATA 247,197,199,192,192,0,0,0
SF 2070 DATA 255,85,255,2,0,0,0,0
IU 2080 DATA 89,89,89,170,4,1,15,15
DS 2090 DATA 86,86,86,170,64,0,192,192
CD 2100 DATA 85,85,85,168,0,0,0,0
ME 2110 DATA 85,85,85,0,0,0,0,0
NB 2120 DATA 85,85,85,1,0,0,0,0
KI 2130 DATA 85,85,84,0,64,48,0,0
AO 2140 RETURN
AL 2150 REM PRINT CHARACTERS
BP 2151 REM TO MAKE THIS LISTING WORK IN
   ANTIC 5,
XV 2152 REM REMEMBER TO USE 'PRINT #6' !
DW 2153 REM IN LINES 2160-2230
WP 2160 POSITION 2,1:? "#$%&'()*      #$%&'
   ()*"
WL 2170 POSITION 2,2:? "+,-./012      +,-./
   012"
WH 2180 POSITION 2,3:? "3456789:      34567
   89:"
WD 2190 POSITION 2,4:? ";<=>?@AB      ;<=>?
   @AB"
UX 2200 POSITION 2,5:? "CDEFGHIJ      CDEFG
   HIJ"
UT 2210 POSITION 2,6:? "KLMNOPQR      KLMNO
   PQR"
UP 2220 POSITION 2,7:? "STUVWXYZ      STUVW
   XYZ"
VF 2230 POSITION 2,8:? "[\]^_♥├|      [\]^_
   ♥├|"
KN 2240 POSITION 2,21:? "These colours ar
   e only a suggestion.     Alter them as
    much as you like!"
RE 2250 GOTO 2250
```

Listing 6

of the public-domain programs is probably 'Create-a-Font' published in Analog magazine (February 1984 issue). Compute! magazine published a very useful utility called 'Antic Aerobics' in October 1983 specifically for the creation of pictures using groups of multicoloured characters.

Listing 6 is a subroutine intended for insertion into Listing 3 above. The characters were created with 'Antic Aerobics' and if you can be bothered to type in all that data you will get a better idea of exactly what can be achieved in these modes.

Not only do Antic modes 4 and 5 allow you to create superb displays they give you the versatility of character graphics (including animation) and considerable memory savings. Consider for example that whilst Antic 5 pixels are the same size as those in Graphics 7, Antic 5 requires only 0.5K memory while Graphics 7 uses nearly 4K.

I hope this article has started you thinking about the 'hidden' Atari graphics modes and I look forward to seeing more programs appear in PAGE 6 using them. ●

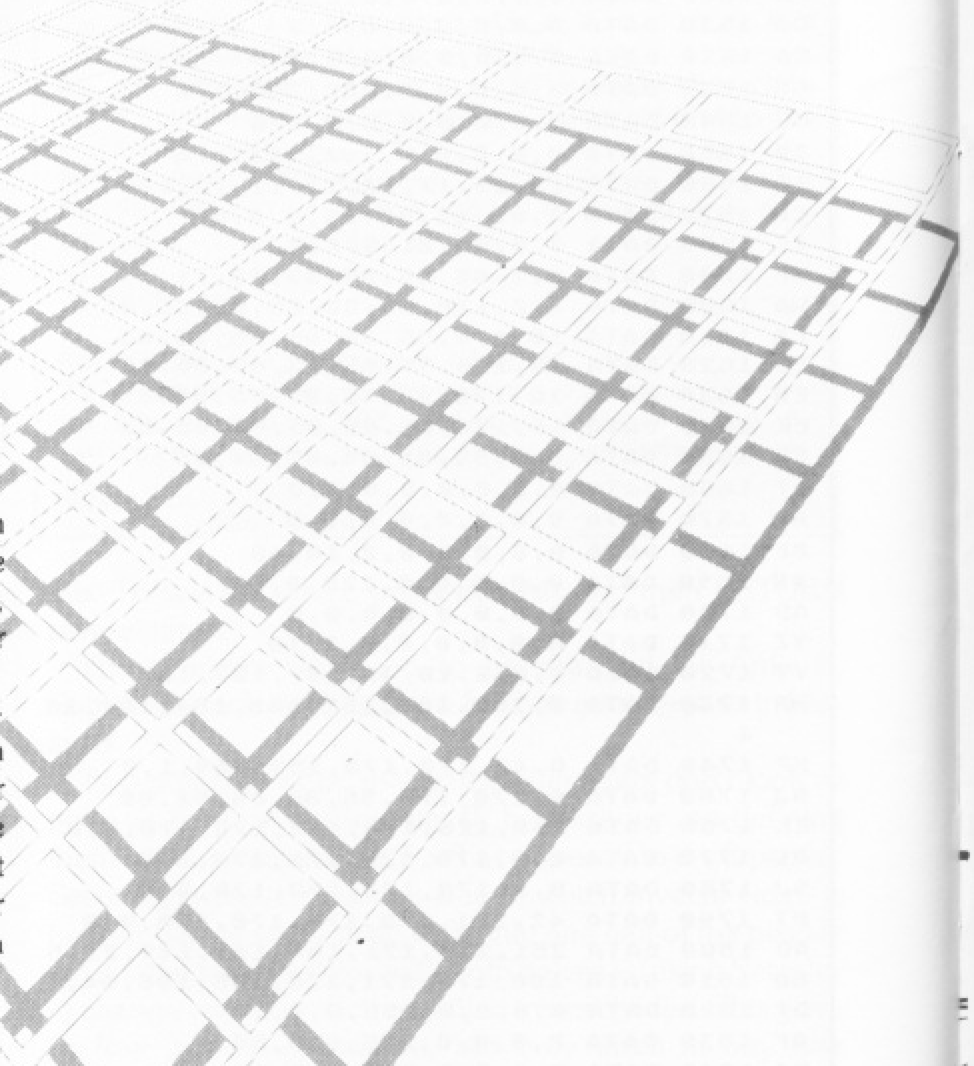
FREEWAY ACE PROBLEMS?

Several readers had problems with FREEWAY ACE from issue 16. The listing is correct as printed but the program will not run if TYPO II has been used to check it. The solution is simply to LIST the program to disk or cassette using LIST "C:" or LIST "D:FREEWAY.LST", switch off the machine and then re-enter using ENTER "C:" or ENTER "D:FREEWAY.LST". This version, which will run perfectly, should then be saved in the usual way.

The problem is that PLAY$ must be the first string dimensioned in view of the way the Player Missile Graphics are set up and the strings already used by TYPO prevent this.

X-Y-ZAP

by Allan Knopp



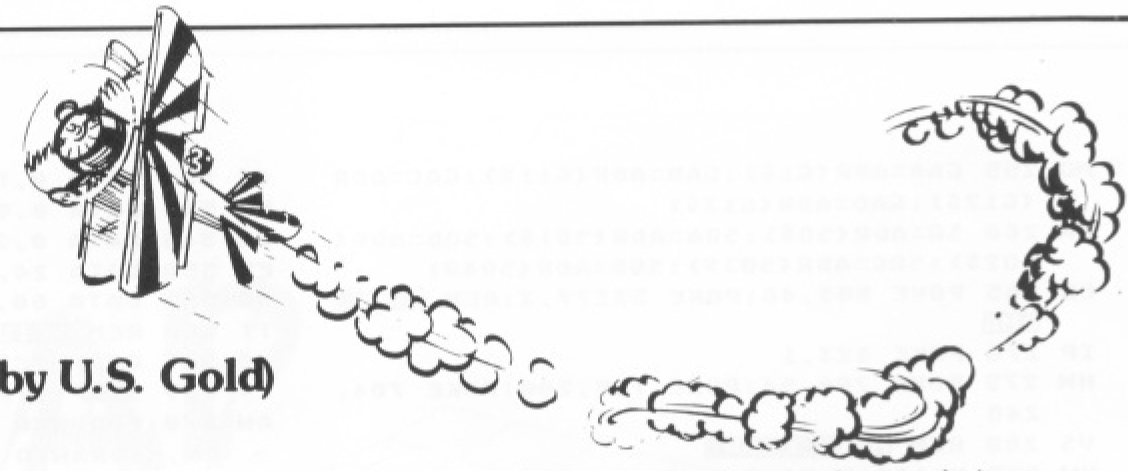
for 2 players

X-Y-Zap is a two player game in which the players are in co-operation rather than competition. Two joysticks are required in ports 1 and 2. Each player controls a tracker, one along the X-axis adjacent to the grid and the other along the Y-axis.

The object of the game is for each player to line their tracker up with the spark which is moving inside the grid. When both players press their fire buttons together a neutralizer will appear at the intersection of each tracker's axis. If the spark is hit the score is increased and a new spark appears at the centre of the grid. A player cannot move his tracker whilst his fire button is pressed and should the spark hit a tracker a life will be lost.

```
EI 1 REM ******************************
KE 2 REM *          X-Y-ZAP           *
RQ 3 REM *             by             *
IS 4 REM *        ALLAN KNOPP         *
EC 5 REM * -------------------------- *
IZ 6 REM *  PAGE 6 MAGAZINE - ENGLAND *
EO 7 REM ******************************
QM 100 REM
QG 105 GOSUB 720:GOSUB 560
NL 110 REM P.M. MOVER SUBROUTINE
ZU 115 REM SETUP
DR 120 DIM P01$(7),P02$(7),P03$(7)
RJ 125 DIM G0$(8),G01$(8),G02$(8),G03$(8)
   ,G1$(8),G11$(8),G12$(8),G13$(8),SQ$(8)
   ,SQ1$(8),SQ2$(8),SQ3$(8),SQ4$(8)
IP 130 DIM PMMOV$(100),P0$(30):MOVE=ADR(P
   MMOV$):FOR X=1 TO 100:READ N:PMMOV$(X)
   =CHR$(N):NEXT X:REM READ ML DATA
MJ 135 REM NOW READ SHAPE DATA
SR 140 FOR X=1 TO 7:READ N:P0$(X)=CHR$(N)
   :NEXT X
LM 145 FOR X=1 TO 7:READ N:P01$(X)=CHR$(N
   ):NEXT X
MA 150 FOR X=1 TO 7:READ N:P02$(X)=CHR$(N
   ):NEXT X
NQ 155 FOR X=1 TO 7:READ N:P03$(X)=CHR$(N
   ):NEXT X
IY 160 FOR X=1 TO 5:READ N:G0$(X)=CHR$(N)
   :NEXT X
BT 165 FOR X=1 TO 5:READ N:G01$(X)=CHR$(N
   ):NEXT X
CH 170 FOR X=1 TO 5:READ N:G02$(X)=CHR$(N
   ):NEXT X
DX 175 FOR X=1 TO 5:READ N:G03$(X)=CHR$(N
   ):NEXT X
LY 180 FOR X=1 TO 8:READ N:G1$(X)=CHR$(N)
   :NEXT X
ET 185 FOR X=1 TO 8:READ N:G11$(X)=CHR$(N
   ):NEXT X
FH 190 FOR X=1 TO 8:READ N:G12$(X)=CHR$(N
   ):NEXT X
GX 195 FOR X=1 TO 8:READ N:G13$(X)=CHR$(N
   ):NEXT X
CX 200 FOR X=1 TO 8:READ N:SQ$(X)=CHR$(N)
   :NEXT X
VS 205 FOR X=1 TO 8:READ N:SQ1$(X)=CHR$(N
   ):NEXT X
WG 210 FOR X=1 TO 8:READ N:SQ2$(X)=CHR$(N
   ):NEXT X
XW 215 FOR X=1 TO 8:READ N:SQ3$(X)=CHR$(N
   ):NEXT X
YK 220 FOR X=1 TO 8:READ N:SQ4$(X)=CHR$(N
   ):NEXT X
ZB 225 PMBASE=INT((PEEK(145)+3)/4)*4:POKE
    54279,PMBASE:REM SETUP P.M. AREA
AZ 230 POKE 53275,32
RN 235 PMB=PMBASE*256
CZ 240 PMD=ADR(P0$):REM P.M. DATA ADDRESS
CL 245 PME=ADR(P01$):PMF=ADR(P02$):PMG=AD
   R(P03$)
JM 250 GUA=ADR(G0$):GUB=ADR(G01$):GUC=ADR
   (G02$):GUD=ADR(G03$)
```

```
MO 255 GAA=ADR(G1$):GAB=ADR(G11$):GAC=ADR
   (G12$):GAD=ADR(G13$)
CW 260 SQ=ADR(SQ$):SQA=ADR(SQ1$):SQB=ADR(
   SQ2$):SQC=ADR(SQ3$):SQD=ADR(SQ4$)
EU 265 POKE 559,46:POKE 53277,3:REM P.M.
   DMA
IP 270 POKE 623,1
HM 275 POKE 706,54:POKE 705,200:POKE 704,
   248
VS 280 REM MAIN LOOP
XW 285 X=128:Y=64:G=1:GG=10:YS=20:XS=68:L
   =5:SC=0
XB 290 XI=8-INT(RND(0)*16):YI=8-INT(RND(0
   )*16)
YA 295 POKE 53278,1:POKE 53263,0:POKE 532
   60,0:POKE 77,0:REM  CLEAR COLLISION. R
   ESET ATTRACT MODE
XY 300 X=X+XI:Y=Y+YI
DO 305 GG=GG+16:IF GG>250 THEN GG=10
XG 310 S0=STICK(0):ST0=STRIG(0)
AJ 315 S1=STICK(1):ST1=STRIG(1)
KL 320 POKE 707,GG
YS 325 IF ST0=1 AND S0=14 THEN YS=YS-6
UT 330 IF ST0=1 AND S0=13 THEN YS=YS+6
VA 335 IF ST1=1 AND S1=11 THEN XS=XS-6
ZY 340 IF ST1=1 AND S1=7 THEN XS=XS+6
FM 345 IF YS<20 THEN YS=20:IF YS>108 THEN
    YS=108
FO 350 IF XS<68 THEN XS=68:IF XS>185 THEN
    XS=185
GW 355 IF X<68 THEN X=68:GOTO 365
KK 360 IF X>185 THEN X=185
PY 365 IF Y<20 THEN Y=20:GOTO 380
FK 370 IF Y>108 THEN Y=108
VP 375 POKE 53278,1
OJ 380 G=G+1:IF G>4 THEN G=1
RJ 385 IF G=1 THEN PMA=PMD:GU=GUA:GA=GAA
US 390 IF G=2 THEN PMA=PME:GU=GUB:GA=GAB
ZD 395 IF G=3 THEN PMA=PMF:GU=GUC:GA=GAC
BT 400 IF G=4 THEN PMA=PMG:GU=GUD:GA=GAD
BH 405 A=USR(MOVE,3,PMB,PMA,X,Y,7)
QK 410 SOUND 0,100,12,14:SOUND 0,0,0,0
NW 415 A=USR(MOVE,2,PMB,GU,185,YS,5)
IK 420 A=USR(MOVE,1,PMB,GA,XS,108,8)
CS 425 IF ST0=0 AND ST1=0 THEN GOSUB 595
TF 430 IF PEEK(53263)>1 AND PEEK(53263)<9
    THEN GOSUB 640
HU 435 IF RND(0)>0.75 THEN 290
ML 440 GOTO 300
CP 445 REM P.M. MOVE DATA
UA 450 DATA 216,104,104,104,133,213,104,2
   4,105,2,133,206,104,133,205,104,133,20
   4,104,133,203,104,104,133,208
IP 455 DATA 104,104,133,209,104,104,24,10
   1,209,133,207,166,213,240,16,165,205,2
   4,105,128,133,205,165,206,105
IH 460 DATA 0,133,206,202,208,240,160,0,1
   62,0,196,209,144,19,196,207,176,15,132
   ,212,138,168,177,203,164
LO 465 DATA 212,145,205,232,169,0,240,4,1
   69,0,145,205,200,192,128,208,224,166,2
   13,165,208,157,0,208,96
ON 470 REM PLAYER IMAGE DATA
FP 475 DATA 66,129,60,36,60,129,66
DC 480 DATA 129,24,36,66,36,24,129
UU 485 DATA 24,36,66,153,66,36,24
CN 490 DATA 36,66,153,60,153,66,36
IN 495 DATA 51,68,255,17,102
GJ 500 DATA 153,34,255,136,51
MJ 505 DATA 204,17,255,68,153
BP 510 DATA 102,136,255,34,204
BD 515 DATA 40,108,198,146,170,198,68,56
OS 520 DATA 40,40,84,146,130,68,68,56
KS 525 DATA 56,56,84,68,68,68,68,56
EN 530 DATA 40,40,40,40,40,40,40,40
CS 535 DATA 0,0,0,24,24,0,0,0
HR 540 DATA 0,0,24,60,60,24,0,0
OC 545 DATA 0,24,60,126,126,60,24,0
EX 550 DATA 24,60,126,255,255,126,60,24
AQ 555 DATA 60,126,255,255,255,255,126,60
TT 560 REM SETUP SCREEN
JO 565 GRAPHICS 7+16:COLOR 2:FOR X=20 TO
   139 STEP 6:PLOT X,0:DRAWTO X,95:NEXT X
AW 570 FOR X=0 TO 95 STEP 6:COLOR 3:PLOT
   20,X:DRAWTO 139,X:NEXT X
AO 575 COLOR 1:PLOT 20,95:DRAWTO 20,0:DRA
   WTO 139,0
NL 580 POKE 710,98:POKE 709,54:POKE 708,1
   4
KP 585 SOUND 1,249,10,2:SOUND 2,251,10,2
ZT 590 RETURN
FC 592 REM ZAP
TB 595 POKE 53278,1:A=USR(MOVE,0,PMB,SQ,X
   S,YS,8):SOUND 0,220,12,14:FOR W=1 TO 1
   5:NEXT W
VA 600 A=USR(MOVE,0,PMB,SQA,XS,YS,8):SOUN
   D 0,224,12,14:FOR W=1 TO 15:NEXT W
DL 605 A=USR(MOVE,0,PMB,SQB,XS,YS,8):SOUN
   D 0,228,12,14:FOR W=1 TO 15:NEXT W
VE 610 A=USR(MOVE,0,PMB,SQC,XS,YS,8):SOUN
   D 0,232,12,14:FOR W=1 TO 15:NEXT W
DP 615 A=USR(MOVE,0,PMB,SQD,XS,YS,8):SOUN
   D 0,236,12,14:FOR W=1 TO 15:NEXT W
JX 620 IF PEEK(53260)>6 AND PEEK(53260)<9
    THEN YS=20:XS=68:X=128:Y=64:GOSUB 630
KS 625 A=USR(MOVE,0,PMB,SQ,0,0,8):RETURN
WQ 630 FOR W=150 TO 20 STEP -5:SOUND 0,W,
   10,14:NEXT W:SOUND 0,0,0,0:POKE 53278,
   1:POKE 53260,0:POKE 53263,0
NB 635 SC=SC+10:RETURN
CF 637 REM LOSE A LIFE
QO 640 POKE 53278,1:POKE 53263,0:FOR W=0
   TO 20:SOUND 0,255-W,12,14:POKE 705,W*1
   0:POKE 706,255-(W*10):NEXT W
RK 645 SOUND 0,0,0,0:POKE 705,200:POKE 70
   6,54
YN 650 POKE 53278,1:POKE 53263,0:YS=20:XS
   =68:A=USR(MOVE,2,PMB,GU,185,YS,5):A=US
   R(MOVE,2,PMB,GA,XS,108,8)
NX 655 X=128:Y=64:A=USR(MOVE,3,PMB,PMA,X,
   Y,7)
SR 660 L=L-1
ZG 665 IF L<0 THEN GOTO 675
ZQ 670 RETURN
UO 675 POKE 53277,0
GK 680 GRAPHICS 2+16
TH 685 POKE 708,102:POKE 709,138
FF 690 IF SC>HSC THEN HSC=SC
QY 695 POSITION 4,5:? #6;"your score ";SC
CZ 700 GRAPHICS 2:POKE 710,0:POKE 752,1
CR 705 POSITION 4,10:? #6;"press start"
YO 710 IF PEEK(53279)<>6 THEN 710
MO 715 GOSUB 560:GOTO 265
DD 720 GRAPHICS 2:POKE 710,0:POKE 752,1
FA 725 FOR X=1 TO 6:POSITION 5,X:? #6;"X"
   :POSITION 5,X-1:? #6;" "
TD 730 SOUND 0,X*5,10,14:FOR W=1 TO 10:NE
   XT W:POKE 708,132:NEXT X
WW 735 FOR Y=18 TO 6 STEP -1:POSITION Y,7
   :? #6;"Y":POSITION Y+1,7:POKE 711,74:?
    #6;" "
VR 740 SOUND 0,Y*5,10,14:FOR W=1 TO 10:NE
   XT W:NEXT Y:POKE 708,142:FOR W=1 TO 10
   :NEXT W
DG 745 POSITION 7,7:? #6;"-zap"
UJ 750 ? "      WRITTEN BY ALLAN KNOPP"
DG 755 FOR W=1 TO 65:SOUND 0,W*4,8,14:POK
   E 709,RND(0)*150:NEXT W:SOUND 0,0,0,0:
   POKE 709,255:FOR W=1 TO 100:NEXT W
ZP 760 RETURN
```



Solo Flight
Microprose
(distributed in the U.K. by U.S. Gold)
48K disk or cassette
£14.95

Flight simulator programs for micros have become increasingly popular over the past year and there is now a good selection available for the Atari. Unlike the D.A.C.C. simulator (reviewed in Page 6 issue 9), Solo Flight is based on flying a small single engined aircraft in a variety of locations in the U.S.A. On booting the disk, you are given the main menu from which you may select either the Practice Flying mode or the optional Mail Pilot game. If "Flying" is chosen, you may also choose the type of flying you wish to practice - this may be Clear Weather, Landing practice, Windy Conditions or Instrument Flight Rules (low cloud and so poor visiblity). You can select the state in which to fly (Kansas, Washington or Colorado) and this is important since it is much more difficult to fly in mountainous Colorado with its tiny airfields than it is in nice flat Kansas. To play Mail Pilot needs a good working knowledge of how to fly the aircraft and so it is best to start with Practice Flying.

The main flying screen starts with your plane grounded on an airfield somewhere in the state of your choice, and your first task therefore is to take off! The screen itself is divided into two halves. The top part shows the view out of the front window (though you can look out of the sides or behind by using the arrow keys). One slightly odd feature is that you can also see a small picture of the aircraft in the middle of the screen. This is intended to aid the user in determining the attitude and height of the plane, since it also casts a shadow. Although a little unrealistic, it is necessary and you very quickly get used to it. The bottom half is a comprehensive set of instruments including the usual altimeter, fuel gauge, airspeed indicator etc., and also Instrument Landing System and VOR navigational indicators. Some of these instruments are dials and others are digital readouts. Controls are provided by joystick and keyboard. The stick controls climb, dive and bank while the keyboard controls the flaps, brakes, landing gear and throttle (with the 0 - 9 keys a la Star Raiders). There is a pause key which is absolutely essential since there is no autopilot in this plane and you could easily crash into a mountain while reading the instructions!. In-flight emergencies can be simulated for practice purposes.

Take-off is straightforward. Simply taxi to the end of the runway, set flaps, apply full power, and pull back on the stick when the speed is 85 knots or more. You inevitably make mistakes the first few times. It's surprising how much difference trying to take off with the brakes applied or with no flaps actually makes!

Once up, you can fly around as much as you like until your fuel runs out, but you can't relax - just as in a real plane you must watch your instruments and make numerous small corrections to keep correct course and height. In Washington and Colorado you must also watch out for mountains and avoid flying into them. The mountains are one of the few negative aspects of the program, being depicted on the screen as white outlines only (i.e. you can see through them) which makes it hard at first to realise what they are and how close you are to them. Fortunately, their heights are given on the state maps in the program's documentation and with a little practice it is easy to fly over them.

The next hurdle is to land, and this is considerably more difficult than take-off. You must get the approach conditions - airspeed, rate of descent, nose pitch etc. just right or you will stall, bounce or simply run off the end of the runway. Failure to lower the landing gear leads to an embarassing crash. The package insert gives some good guidance on the landing procedure, but it is still very much a matter of practice. It is also essential to practice routine scanning of the instruments and flying in windy conditions before trying IFR flying. This is very difficult at first since once above the cloud ceiling you can no longer see anything out of the window! Finding somewhere to land demands an understanding of VOR navigation - a system which allows you to work out your current position and that of nearby airfields by means of radio beacon cross-bearings. Again, this is well explained in the documentation.

Reviewed by Steve Pedler

Having mastered the control of the aircraft, you can then go on to try the Mail Pilot game included in the package. This requires you to deliver five bags of mail to the correct destination in the least amount of time. Not only do you have to be able to navigate correctly, but as the game progresses the weather deteriorates and mechanical emergencies may develop (especially at the higher difficulty levels). After each delivery you are shown a map of the route you took to arrive at your destination, and on difficult airfields in bad weather you may have flown all over the place before arriving! If you crash, the program will tell you where you went wrong. At the end you are given a score depending on the number of successful deliveries, degree of difficulty and technical competence in flying the plane.

Overall, this is a very worthwhile program to own. Once you master the principles of flying the plane, there is the challenge of learning to fly by instruments and the immense satisfaction of bringing the plane in safely with an overheating engine in terrible weather on a difficult airstrip. Instrument flying is very well catered for and the package offers the facility of designing your own approaches to any one of 21 different fields! The documentation is excellent and supplies all you need to know about flying the aircraft. No program is perfect, and I did have one or two small complaints. I have already mentioned the mountains, and some of the instruments use artifacting for additional colour, which made the fuel gauge in particular difficult to read. Other than that, it is very good indeed and can be heartily recommended.

WIN a copy of SPARTADOS

Reader Fred Owens has kindly donated a copy of Spartados, worth nearly £40, as a prize for a disk utilities competition.

All you have to do is write a short utility for disk users. Perhaps the most useful would be a routine that formats disks with bad sectors (it can be done) or one which restores deleted files. How about a routine which moves the directory to another location and gives just a message on the normal directory. Perhaps you have more ideas.

Please submit your entries on disk, which will be returned, preferably with a brief explanation of the program. Don't forget your name and address and mark your letter 'SPARTADOS COMPETITION'. The winning entry will be published for the benefit of other readers.

Many thanks to Fred for donation of the prize. Now it's up to you to win it!

DE RE PIRACY
continued

To prevent piracy in the future, the cost of all software must be reduced to justifiable and affordable prices. The moles inside Atari and Activision must be dug out and prosecuted. Atari games must become more widely available than just through mail order - department stores in my area only stock one or two Atari titles and these are never demonstrated by the computer-ignorant staff. Atari should hold user shows of its own to attract people to buy the new software and advertise effectively to get the message across that ATARI IS BEST!

It will take a lot of teamwork and muscle to beat the pirates. Most importantly, Atari and other producers must try to analyse and understand the needs of the paying public - or they will feel cheated and retaliate by means already experienced by the previous Atari.

My reason for writing is that I can now see hope with the new Atari of a future where Atari is number one. That is if that is what you and I - and ATARI - want. LONG LIVE ATARI! ●

LOGO

Reviewed by Ann Ramkaran

Reviewing a language is rather difficult as, to some extent, whether you like it or hate it depends on what you want to do with it. As I use Atari computers in a school, I was particularly interested in the educational uses of Logo.

The Atari version of Logo is written by Logo Computer Systems of Montreal and is a full implementation, not just turtle graphics. It comes in the usual, somewhat extravagant, Atari packaging as a cartridge and two manuals. The manuals are much better than usual and are very useful so that it is possible to get on reasonably well without buying extra books. Some of the sample programs in the reference manual are actually useful! One of the manuals is a 153 page introduction to Turtle graphics and the other is a 209 page reference manual.

WHAT DOES LOGO DO?

Logo allows the user to define procedures and once defined these stay in memory (unless erased) so they can be used repeatedly. Recursion is allowed so a procedure can call itself. Procedures reside in an area of memory called 'workspace' and the entire contents of the workspace can be saved on disk or tape.

One of the best features of Logo is, of course, Turtle graphics. The Atari version offers four turtles which can move independently and have seperate speed control. Commands to move are easy as are turning commands. Error messages are beautifully explicit. For example "I don't know how to .....". A pleasant change from the error numbers given by Atari Basic.

The Atari version differs from many others in allowing collision detection. This is easily available by setting up 'WHEN DEMONS'. Once the demons are enabled they remain active until cleared. This example shows how easy it is to set up collision detection:

```
WHEN 19 [INSTRUCTION LIST]
```

When Turtles 0 and 1 collide (event 19) the specified instruction list or procedure is executed. Position of the joysticks and use of the fire button can also be detected.

It is a pity, given the graphics capabilities of the hardware, that there is no choice of graphics mode available. The lines drawn by the Turtles are relatively low resolution which limits some possible applications. A shape editor is provided allowing up to 16 different shapes to be designed and held in memory. The shape of the Turtle can be changed to any one of these very rapidly, allowing simple animation.

As well as supporting Turtle graphics,- Logo also provides useful list processing and has abilities for file handling. This might well be of interest to those who find the lack of proper string arrays in Atari Basic a handicap, however, as with all interpreted languages, this type of program runs slowly and offers few advantages over something like Microsoft Basic II. If you need fast list processing and string handling, look for a language which is written for the purpose.

EASY TO START

At entry level (Turtle graphics) Logo is easy to understand. A six year old can get the Turtle moving and draw on the screen. At a more advanced level the language, as might be expected, becomes more difficult and is no easier than Basic.

From an educational point of view Logo is interesting to work with. It undoubtedly helps children to learn about problem solving. The big advantage over structured Basic is that the graphics are easy, children like to draw things on the screen and are therefore better motivated. As relatively few commands are needed to get started it is easy enough for young children to use. The Turtle graphics are excellent for investigating simple geometry. It is probably best used with groups of children by explaining the commands available then allowing the children to work out their own procedures to solve problems which as far as possible they choose themselves. In this way the children learn from their own experience.

I would recommend Logo to anyone using the Atari computers in education and also suggest it to parents who bought the computer in the hope that their children would learn more than how to zap aliens!!

Logo should be available from local suppliers at approximately £60. Educational users should be able to get a discount if they contact Atari at Slough.

Anne Ramkaran is a teacher in Liverpool. She has a set of programs developed for the school for creating text files in Greek. These are on disk and can be printed to a 1020 printer when required. Anne is happy to supply the package to anyone interested free of charge if they send a blank disk plus return postage to her at 318, Aigburth Road, Liverpool, L17 6AA.

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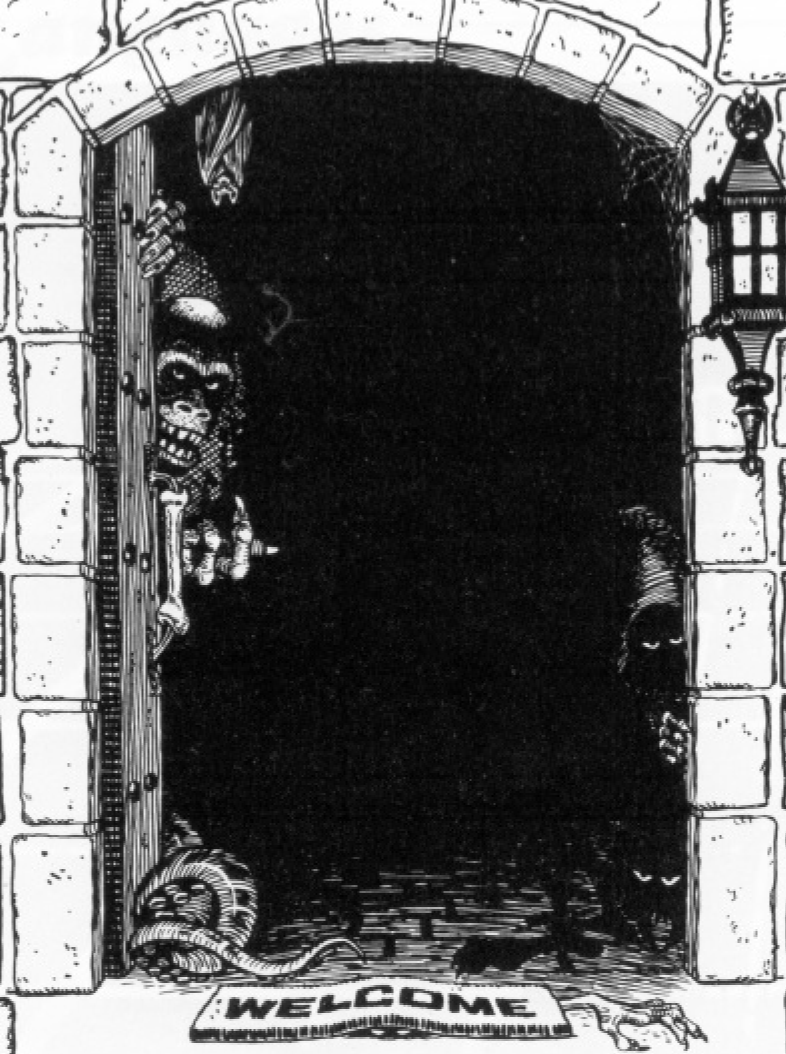
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Castle Morgue

an adventure

by David Blease

All the kingdoms of the known world have a Princess but many have sinister and evil beings that seek to gain power by kidnap and ransom. The beautiful Princess Maecina has been captured by such wretches and is held captive deep in the recesses of the Castle Morgue. As principal knight of the kingdom you have spent many months searching for the Princess and have come at last to the drawbridge of the mighty Castle Morgue. The princess lies close at hand and your task is nearly complete but there are many dangers lurking within. Can you overcome these dangers and reach the Princess? Having found her are you then strong and clever enough to escape?

Castle Morgue is a text adventure in similar vein to House of Secrets (PAGE 6, Issue 10) but has many improvements. The split screen is redrawn during the vertical blank period getting rid of those occasional glitches of colour. The response time remains very fast and the screen layout has been improved. There are 43 locations and a large vocabulary. As before every problem has a logical solution and there are no 'magic' words.

Typing it in should be easier as there are few graphics characters used and only the occasional command needs to be abbreviated. The program just squeezes into 32k. Be sure to SAVE a copy before running and if using cassette I recommend that you CSAVE at least two copies. The program can be typed in several sections by using LIST to save each section and ENTER to combine all sections into one program that can then be saved.

If you want to play Castle Morgue without getting clues from the listing or just don't fancy all that typing, disk users can obtain a copy of the Issue 17 disk from PAGE 6 priced £3.95 and cassette users can obtain a tape direct from the author. Send £2.50 to David Blease, 31, Melcombe Avenue, Weymouth, Dorset, DT4 7TF. Tel. 0305 771230. Please remember to include your name and address and ensure they are legible.

```
EH 0 REM ********************************
WG 1 REM *        CASTLE MORGUE         *
MZ 2 REM *              an              *
HF 3 REM *           Adventure          *
XQ 4 REM *              by              *
HQ 5 REM *         DAVID BLEASE         *
ED 6 REM * ---------------------------- *
JA 7 REM *  PAGE 6 MAGAZINE - ENGLAND   *
EP 8 REM ********************************
TQ 9 REM USE POKE 82,0 IN DIRECT MODE TO
         TYPE LINES 13,17,2041 and 2047
OZ 10 RESTORE 2001:GOSUB 2000:GRAPHICS C0
   :POKE 106,123:GRAPHICS C0:POKE 710,163
   :POKE 712,163:POKE 82,C0:POKE 752,C1
AX 11 POKE 16,112:POKE 53774,112:POKE 170
   1,PEEK(88):POKE 1702,PEEK(89):POKE 170
   0,C8
PE 12 POSITION C13,C0:? "Welcome to ":POS
   ITION C12,C1:? "Castle Morgue":POSITIO
   N 11,C2:? "by  David Blease":?
FN 13 ? "You command me with 2 word phras
   es.":? "I understand many words and so
   me single letter commands, e.g N,S,E,W
   ,U,D."
AV 14 ? "Also Q for quit/save game and I
   to take an inventory of what I am carr
   ying."
UZ 15 ? :? "If one word doesn't work try
   another    with a similar meaning."
BM 16 ? :? "A beautiful princess lies inc
   arcerated  in a castle hidden deep in
   the forest."
YS 17 ? :? "There are many problems to so
   lve and    dangers along the way. You'
   ll need all  your skills to rescue her
   ."
QN 18 POSITION C0,22:? "Please wait for g
   uidance."
ZP 20 GOSUB 2002:OPEN #C1,C4,C0,"K:":POSI
   TION C0,22:? "Now press RETURN
     ":GET #C1,L
YW 21 ? CHR$(125):? "Do you wish to resto
   re a previously     saved game?":GET #
   C1,L:IF L<>78 AND L<>89 THEN 21
LJ 22 CLOSE #C1:ME$=M$(613,620):LOC$=M$(C
   1,C14)
```

```
BQ 23 IF L=89 THEN GOSUB 1900:M=ASC(ME$(C
   8,C8))
DS 25 ? CHR$(125):POKE 559,C0:POKE 560,C0
   :POKE 561,C6:POKE 559,34:POSITION C0,C
   10
GL 26 A=USR(ADR(R$)):GOTO TOP
BE 30 L=C14*(ASC(ME$(C8,C8))-49)+C1:RETUR
   N
ZB 31 HE=USR(CH,LOC8,N,C7):H=HE+C7:RETURN
UA 32 IN=USR(CH,ME,N,C7):RETURN
ZV 33 GOSUB 32:IF IN THEN RETURN
ZL 34 POP :? "I'm not carrying it":RETURN
TB 35 GOSUB 31:IF HE THEN RETURN
LQ 36 POP :? "I don't see it here":RETURN
RM 37 HE=USR(CH,LOC8,ADR("/"),C7):IF  NOT
    HE THEN ? "I'll need fewer objects he
   re!":POP :RETURN
CE 38 H=HE+C7:RETURN
YW 39 IN=USR(CH,ME,ADR("/"),C7):IF  NOT I
   N THEN ? "I'm carrying too much!":POP
   :RETURN
ZU 40 RETURN
ZS 41 GOSUB 32:IF IN THEN RETURN
UF 42 GOTO 35
XN 48 ? "Impossible":RETURN
ML 49 ? "How?":RETURN
VL 52 ? "I don't understand.":RETURN
VL 53 ? "Eh?":RETURN
AT 54 ? "It's shut":RETURN
US 55 ? "It won't move":RETURN
VH 56 ? "It is open":RETURN
JL 57 ? "I see nothing special.":RETURN
DS 58 ? "I've found something!":? :RETURN
NA 59 ? "It's empty.":RETURN
ZQ 60 ? "I don't see it here.":RETURN
QH 61 ? "You've already done that!":RETUR
   N
CY 62 ? "Nothing happens.":RETURN
VM 63 ? "I can't.":RETURN
EG 64 ? "Please be serious!":RETURN
HB 66 ? "It's stuck.":RETURN
GE 67 ? "Be more specific":RETURN
NX 68 ? "It's too high up.":RETURN
CR 69 ? "I can't take that!":RETURN
SW 70 ? "It is closed":RETURN
XC 71 ? "Forget it!":RETURN
BG 80 ? "in a dark mysterious forest":RET
   URN
OL 81 ? "in a clearing.There is a cottage
      here":RETURN
TC 82 ? "inside the cottage.":RETURN
GI 83 ? "in the forest,the trees thin out
     tothe south.":RETURN
OR 84 ? "in a clearing.There is a cottage
      here":RETURN
VE 85 GOTO 82
BL 86 ? "in the forest,there seems to be
    a  break in the trees to the south.":R
   ETURN
YR 87 ? "in front of the drawbridge of a
      mysterious castle.":RETURN
XJ 88 ? "by the castle moat.The forest is
      impenetrable here.":RETURN
JT 89 ? "at the base of the castle.There
    is a window here.":RETURN
NT 90 ? "in a cold wine cellar.":RETURN
KS 91 ? "on a wide marble staircase.":RET
   URN
ND 92 ? "at the tradesmen's entrance.Ther
   e  is a button here.":RETURN
VA 93 GOTO 91
EL 94 ? "in the castle kitchens.":RETURN
KI 95 ? "in the pantry!":RETURN
VG 96 GOTO 91
CF 97 ? "in the dining room.There's a
      fireplace here and a door.":RETURN
ZU 98 ? "at the top of the staircase.Ther
   e  are guards ahead.":RETURN
BQ 99 ? "in the food lift.There's a knob
     here.":RETURN
VZ 100 GOTO 99
WC 101 GOTO 99
VG 102 ? "in the servant's quarters.":RET
   URN
BU 103 ? "squeezed inside the old firepla
    ce. There is a loose brick here.":RETU
   RN
WL 104 ? "in a cold musty old room.There
    is acoffin in the corner.":RETURN
WR 105 ? "inside the coffin.Yet another
     button here.":RETURN
VC 106 ? "in some sort of study.":RETURN
ZL 107 ? "in a low passageway.":RETURN
BI 108 ? "in a small deserted library":RE
   TURN
PN 109 GOTO 107
MA 110 ? "in the castle armoury.":RETURN
CB 111 ? "in a ladies cloakroom.Fortunate
   ly  no ladies!":RETURN
ZF 112 ? "in a secret laboratory.":RETURN
DF 113 ? "in a beautiful drawing room.":R
   ETURN
BK 114 ? "in an overgrown garden.Quite
     confusing!":RETURN
OE 115 GOTO 114
OH 116 GOTO 114
XS 117 ? "at the base of a tall tower.Hig
   h  up is a window.":RETURN
EM 118 ? "inside the tower.":RETURN
TP 119 ? "near the top of the tower.There
    is a door here.":RETURN
OR 120 ? "Trapped in a small bedroom,with
    a  window high up.":RETURN
GK 121 ? "flying away with the beautiful
     princess to live happily ever afte
   r.":? :? "Well done!":RETURN
FQ 122 ? "at the bottom of the well.":RET
   URN
OJ 130 DATA Some juicy apples
ZK 131 DATA A rope
ST 132 DATA A broomstick
SC 133 DATA An axe
FM 134 DATA A crate of wine
FU 135 DATA A bottle
JJ 136 DATA A cake
PK 137 DATA A file
WB 138 DATA A large pumpkin
DO 139 DATA Some matches
SS 141 DATA A broomstick
ON 142 DATA A power pack
CJ 143 DATA A lantern
JE 144 DATA A lantern (lit)
VM 145 DATA A book
QK 146 DATA A key
MG 147 DATA Dynamite
SS 148 DATA A blanket
GU 149 DATA A short fuse
FV 150 DATA The beautiful Princess
OU 151 DATA A handle
YT 153 DATA A painting
UY 156 DATA A coffin
WL 158 DATA A large safe
WJ 160 DATA A grating
XY 161 DATA A hook
ZB 163 DATA A well
WC 165 DATA A cook
IS 166 DATA A butler
QR 167 DATA An unconscious butler!
IM 169 DATA A wizard
XK 170 DATA A sign
VF 200 ? :GOSUB 30:M$(L,L+C13)=LOC$:ME$(C
   8,C8)=CHR$(M):GOSUB 30:LOC$=M$(L,L+C13
   )
FH 201 A=USR(1710):A=USR(1570)
```

→

```
FZ 202 IF M=91 AND NOUN$(75,75)=">" THEN
   POSITION C8,C4:? "I can't see in the d
   ark!":X=C8:A=USR(1657):GOTO 300
SA 203 IF R$="DEAD" THEN POSITION C10,C2:
   ? "You have died...":X=C6:POKE 1700,X:
   A=USR(1657):GOTO 1810
AW 204 POSITION C0,C0:? "I am ";:GOSUB 79
   +(M-48)
SJ 206 POSITION C0,C3:? "Possible exits a
   re:";:L=C0:FOR I=C1 TO C6:IF LOC$(I+C1
   ,I+C1)<>"/" THEN ? DIR$(I,I);" ";:L=C1
NM 207 NEXT I:IF  NOT L THEN ? "Nil"
BE 208 L=C0:X=C6:FOR I=C8 TO C14:A=ASC(LO
   C$(I,I))-48:IF A=-1 THEN NEXT I:GOTO 2
   13
UI 209 RESTORE 129+A:READ B$:IF  NOT L TH
   EN POSITION C0,C5:? "Visible objects :
   ":L=C1
IX 210 IF L=C1 THEN POSITION C0,X:? B$:X=
   X+C1:NEXT I
ED 213 POSITION C0,X:? "_________________
   ______________________":X=X+C2:POKE 1
   700,X:A=USR(1657)
TI 300 IF R$="END" THEN ? :? "Well Done":
   GOTO 1810
XC 301 TRAP 300:? :? "What shall I do";:I
   NPUT R$:TRAP 40000:L=LEN(R$):IF  NOT L
    THEN GOSUB 53:GOTO 300
BA 302 IF L=C1 THEN V$=R$:GOTO 320
QB 303 IF R$="HELP" THEN GOSUB 63:GOTO 30
   0
TX 304 X=USR(CH,ADR(R$),ADR(" "),L):IF X<
   C2 THEN GOSUB 53:GOTO 300
OI 305 V$=R$(C1,X-C1):IF X=C3 THEN V$(C3,
   C4)="**"
MK 306 IF X=C4 THEN V$(C4,C4)="*"
MG 307 A=USR(DE,ADR(VERB$)-C5,V,45)
HL 308 IF  NOT A THEN GOSUB 52:GOTO 300
HV 309 N$=R$(X+C1,L):L=LEN(N$):IF L<C2 TH
   EN GOSUB 52:GOTO 300
YQ 310 IF L=C2 THEN N$(C3,C4)="**"
CG 311 IF L=C3 THEN N$(C4,C4)="*"
YS 312 L=USR(DE,ADR(NOUN$)-C5,N,56):IF  N
   OT L THEN GOSUB 52:GOTO 300
WB 313 N$=CHR$(L):X=A-64
TD 314 IF X>24 THEN X=X-24:GOTO 317
ON 315 ON X GOSUB 350,400,420,430,440,470
   ,520,560,570,580,590,600,605,800,615,6
   30,640,650,660,680,700,710,720,730
MW 316 GOTO 300
JO 317 ON X GOSUB 760,770,780,790,800,810
NC 318 GOTO 300
UT 320 L=USR(CH,ADR(DIR$),V,C8):IF  NOT L
    THEN GOSUB 53:GOTO 300
UL 321 IF L>C6 THEN 330
PE 322 L=L+C1:M=ASC(LOC$(L,L)):IF M=47 TH
   EN ? "You can't go that way!":M=ASC(LO
   C$(C1,C1)):GOTO 300
VS 323 IF M>65 THEN R$=NOUN$(55,55)
BP 324 ? OK$:GOTO TOP
RI 330 IF L<>C7 THEN 340
AX 331 L=C0:? "I am carrying:":FOR I=C1 T
   O C7:X=ASC(ME$(I,I))-48:IF X=-1 THEN N
   EXT I:GOTO 334
RU 332 RESTORE 129+X:READ R$:? R$:L=C1:NE
   XT I
CT 334 IF  NOT L THEN ? "Nothing!"
MX 335 GOTO 300
YY 340 GOSUB 1910:GOTO 300
QY 350 REM
KT 351 IF L<90 THEN GOSUB 41
YJ 352 L=L-48:R$=LOC$(C1,C1):IF L>59 THEN
    57
IK 353 IF L<23 THEN ON L GOTO 361,57,358,
   57,57,356,57,57,57,57,357,358,57,359,3
   60,362,57,57,363,57,365,57
BF 354 IF L<42 THEN ON L-22 GOTO 367,57,5
   4,369,59,371,56,373,57,57,374,375,378,
   57,380,381,383,384,385
PA 355 ON L-41 GOTO 387,390,57,57,57,70,3
   94,374,70,56,395,396,57,57,57,57,57,57
OC 356 ? "It's full of BLOOD.":RETURN
FQ 357 ? "The power pack is missing":RETU
   RN
MD 358 ? "It is energised.":RETURN
SA 359 ? "The lantern is off.":RETURN
GP 360 ? "The lantern is on.":RETURN
JE 361 ? "They are cooking apples.":RETUR
   N
BC 362 ? "'Spells for every occasion'":RE
   TURN
OY 363 ? "It is a fire blanket.":RETURN
HG 365 ? "Aah.The girl of your dreams!":R
   ETURN
AC 367 ? "It is crooked.":RETURN
JB 369 ? "There's a man inside with stran
   ge teeth.":RETURN
RA 371 ? "It is locked.":RETURN
QG 373 ? "There is something under it.":R
   ETURN
LX 374 ? "It is dark and deep.":RETURN
TX 375 ? "The rope is attached.":RETURN
OB 378 ? "Have you any apples?":RETURN
ZD 380 ? "Looks like a heavy drinker!":RE
   TURN
FY 381 ? "He's out cold!":RETURN
MK 383 ? "He's looking for something.":RE
   TURN
MV 384 ? "He's still looking.":RETURN
QS 385 ? "Try reading it.":RETURN
QZ 387 IF R$="B" THEN 371
CW 388 IF R$="X" THEN 391
ST 389 GOTO 60
CI 390 IF R$="B" THEN 57
DV 391 IF R$="X" THEN 393
SA 392 GOTO 60
ME 393 ? "The handle is missing.":RETURN
PW 394 ? "This is it all right.":RETURN
AQ 395 ? "There's a good fire going.":RET
   URN
VK 396 ? "The fire is out.":RETURN
QP 400 REM
EH 401 GOSUB 32:IF IN THEN ? "I'm already
    carrying it!":RETURN
WC 402 GOSUB 39:IF L>77 THEN 69
AC 403 R$=LOC$(C1,C1):GOSUB 35
VV 404 IF R$="[" AND NOUN$(75,75)=">" THE
   N GOSUB 36
JO 405 IF R$="U" AND N$="2" THEN 763
WN 406 IF L<71 THEN LOC$(H,H)="/":ME$(IN,
   IN)=N$:GOTO 410
TR 407 GOTO 55
AH 410 A=USR(CH,ME,ADR(";"),C7):IF A AND
   USR(CH,ME,ADR("="),C7) THEN N$="=":GOS
   UB 32:ME$(IN,IN)="/":GOTO 412
PH 411 ? OK$:POP :GOTO TOP
QE 412 N$=";":GOSUB 32:ME$(IN,IN)="<":NOU
   N$(60,60)="<":? "The broom is energise
   d.":POP :GOTO TOP
QT 420 REM
DR 421 GOSUB 33:GOSUB 37:R$=LOC$(C1,C1)
OH 422 IF R$<>"B" THEN 424
HH 423 IF N$="C" AND NOUN$(205,205)="d" T
   HEN ? "The fire is now out.":NOUN$(205
   ,205)="e"
PB 424 LOC$(H,H)=N$:ME$(IN,IN)="/":? OK$:
   ? :POP :GOTO TOP
QV 430 REM
DD 431 IF L>70 THEN 52
UO 432 GOTO 67
QX 440 REM
MS 441 GOSUB 33:R$=LOC$(C1,C1)
DN 442 IF N$="1" AND R$="?" THEN ? "'Than
   ks luv-you'll need this'-she hands me
   a cake":ME$(IN,IN)="7":GOTO 460
```

```
XW 443 IF N$="5" AND R$="G" THEN ? "Thans
     h.The lash chap left thish-he hands me
      a lantern.":ME$(IN,IN)=">":GOTO 461
VS 445 IF N$="@" AND USR(CH,LOC8,ADR("W")
     ,C7) THEN ME$(IN,IN)="/":? "Thanks-now
      if I had a pumpkin...":GOTO 458
UB 446 IF N$="9" AND USR(CH,LOC8,ADR("X")
     ,C7) THEN ME$(IN,IN)="/":? "Aha-he mut
     ters something & disappears":GOTO 459
QQ 447 IF N$="6" AND USR(CH,LOC8,ADR("J")
     ,C7) THEN ME$(IN,IN)="/":GOTO 462
HC 450 GOSUB 37:GOSUB 62:GOTO 424
IB 458 NOUN$(160,160)="X":N$="W":GOSUB 31
     :LOC$(H,H)="X":RETURN
KL 459 N$="X":GOSUB 31:LOC$(H,H)="C":POP
     :GOTO TOP
QT 460 NOUN$(150,150)="T":N$="S":GOSUB 31
     :LOC$(H,H)="T":RETURN
EI 461 NOUN$(155,155)="V":N$="U":GOSUB 31
     :LOC$(H,H)="V":RETURN
GG 462 NOUN$(125,125)="K":? "He changes i
     nto a bat and flies away!":N$="J":GOSU
     B 31:LOC$(H,H)="K":RETURN
RD 470 REM
WB 471 IF L>116 THEN L=L-116:POP :GOTO 32
     2
QO 472 R$=LOC$(C1,C1)
GO 473 A=USR(CH,ADR("Z[\"),N,C3):IF  NOT
     A THEN 482
WR 474 IF R$<>"B" THEN 478
KE 475 IF N$="Z" THEN 63
DT 476 M=ASC("P"):? OK$:POP :GOTO TOP
GH 478 IF R$<>"X" THEN 60
LI 479 IF N$="\" THEN ? OK$:M=ASC("Y"):PO
     P :GOTO TOP
TB 480 GOTO 54
LE 481 IF N$="]" THEN 63
UT 482 IF N$="^" AND R$="2" THEN ? OK$:M=
     ASC("3"):POP :GOTO TOP
CP 483 IF N$="^" AND R$="5" THEN ? OK$:M=
     ASC("6"):POP :GOTO TOP
HC 485 IF N$="-" AND R$="8" THEN 63
KF 486 IF N$="♦" AND R$="8" THEN ? "Yes-b
     ut how?":RETURN
QC 488 IF N$="a" AND R$="9" THEN ? "Glub!
     Glub!":GOSUB 1800:R$="DEAD":POP :GOTO
     TOP
YF 490 A=USR(CH,ADR("bc"),N,C2):IF  NOT A
      THEN 500
GZ 491 IF N$="b" AND R$=":" THEN 54
KD 492 IF R$=":" THEN ? OK$:M=ASC(";"):PO
     P :GOTO TOP
WA 493 IF R$<>"Y" THEN 500
UX 494 A=USR(CH,ME,ADR("3"),C7):IF  NOT A
      THEN 68
LM 495 A=USR(CH,ME,ADR("E"),C7):IF  NOT A
      THEN ? "What about ";:RESTORE 150:REA
     D B$:? B$:RETURN
NX 496 R$="END":M=ASC("Z"):POP :GOTO TOP
GY 500 IF N$="d" AND R$="B" THEN ? "I'm o
     n fire!!":GOSUB 1800:R$="DEAD":POP :GO
     TO TOP
WU 501 IF N$="e" AND R$="B" THEN ? OK$:M=
     ASC("H"):? "That was the doorbell.":?
     CHR$(253):? :M$(182,182)="6":GOTO 515
UA 502 IF N$="j" THEN 49
YL 503 IF N$="1" AND R$="B" THEN ? OK$:M=
     ASC("H"):POP :GOTO TOP
EJ 504 A=USR(CH,ADR("IJK"),N,C3):IF  NOT
     A THEN 510
MA 505 GOSUB 35:IF N$="I" THEN GOSUB 63:G
     OTO 70
LI 506 IF N$="J" THEN R$="DEAD":? "Someth
     ing just bit me on the neck...":GOSUB
     1800:? "I'm dead!":POP :GOTO TOP
JV 508 IF N$="K" THEN ? OK$:M=ASC("J"):PO
     P :GOTO TOP
HD 510 A=USR(CH,ADR("QR"),N,C2):IF  NOT A
      THEN 514
YE 511 GOSUB 35:IF N$="Q" THEN ? "I'm fal
     ling!":R$="DEAD":GOSUB 1800:POP :GOTO
     TOP
IA 512 IF N$="R" THEN ? OK$:M=ASC("["):PO
     P :GOTO TOP
GH 513 IF L>92 THEN 63
SE 514 GOTO 52
AP 515 NOUN$(205,205)="1":POP :GOTO TOP
QU 520 REM
QC 521 R$=LOC$(C1,C1)
JR 522 GOSUB 31:IF  NOT HE THEN 540
IA 523 A=USR(CH,ADR("IJK"),N,C3):IF  NOT
     A THEN 530
PK 524 IF N$="I" THEN ? OK$:NOUN$(125,125
     )="J":LOC$(H,H)="J":RETURN
SI 525 GOTO 61
CW 530 IF N$="L" THEN 63
BC 532 A=USR(CH,ADR("NO"),N,C2):IF  NOT A
      THEN 540
EA 533 GOSUB 63:GOTO 66
JU 540 A=USR(CH,ADR("Z[\"),N,C3):IF  NOT
     A THEN 547
KH 541 IF R$="B" AND N$="Z" THEN ? "It's
     locked.":RETURN
JT 542 IF R$="B" THEN ? OK$:GOTO 56
HC 543 IF R$="X" AND N$="\" THEN 56
LE 544 IF R$="X" THEN 798
OC 546 IF R$="Y" THEN GOSUB 63:GOTO 55
UF 547 IF R$="8" AND N$="_" THEN 55
OW 548 A=USR(CH,ADR("bc"),N,C2):IF  NOT A
      THEN 554
WT 549 IF R$=":" AND N$="b" THEN 63
XP 550 IF R$=":" THEN 56
MD 552 IF R$="Y" THEN 56
SD 554 A=USR(CH,ADR("56@"),N,C3):IF  NOT
     A THEN 48
SZ 555 GOTO 62
RC 560 REM
UR 561 GOSUB 31:IF  NOT HE THEN GOSUB 32:
     IF  NOT IN THEN 564
CD 564 A=USR(CH,ADR("bc"),N,C2):IF  NOT A
      THEN 48
ZQ 565 R$=LOC$(C1,C1):IF R$=":" AND USR(C
     H,ME,ADR("4"),C7) THEN ? "SMASH!":NOUN
     $(200,200)="c":RETURN
WS 566 IF R$=":" THEN 63
CH 567 IF R$="Y" THEN 552
VH 569 GOTO 48
RE 570 REM
ZG 571 GOSUB 41:GOTO 62
RG 580 REM
IJ 581 IF N$<>"Y" THEN 588
RM 582 R$=LOC$(C1,C1):GOSUB 35:IF R$="="
     THEN ? "Ring bell when delivering":RET
     URN
ER 583 IF R$="8" THEN ? "Keep Out":RETURN
GM 584 IF R$="U" THEN ? "OUT OF ORDER":RE
     TURN
DU 588 IF N$="@" THEN GOSUB 33:? "It is w
     ritten in a strange language.":RETURN
TH 589 GOTO 52
RI 590 REM
JN 591 IF L>57 THEN 48
UZ 592 GOSUB 33:IF N$="1" THEN ? OK$;" a
     bit sour!":ME$(IN,IN)="/":RETURN
XD 593 IF N$="7" THEN GOSUB 37:? "Chomp,C
     homp-OUCH!CLANG!":GOSUB 58:ME$(IN,IN)=
     "/":LOC$(H,H)="8":POP :GOTO TOP
SR 595 IF N$="9" THEN ? OK$;:ME$(IN,IN)="
     /":? "Yugh!":RETURN
UG 596 GOTO 64
QR 600 REM
CJ 601 GOSUB 33:IF N$="5" THEN ? "I'm tee
     total.":RETURN
OK 603 IF N$="6" THEN ? "Yugh!!":GOTO 71
TJ 604 GOTO 64
```

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```
RG 605 REM
FT 606 IF L<95 THEN 52
HY 607 R$=LOC$(C1,C1):IF N$="_" AND R$="8" THEN 70
VE 608 IF N$="a" THEN GOSUB 63:? "-too wide.":RETURN
SS 609 GOTO 52
RI 615 REM
IX 616 IF N$="f" THEN 690
HY 617 IF L>89 THEN 52
BN 618 GOSUB 41:IF N$<>"G" THEN 620
BN 619 ? "Aha-a secret exit NORTH!":NOUN$(120,120)="H":LOC$(H,H)="H":LOC$(C2,C2)="L":? :POP :GOTO TOP
ZJ 620 IF N$="H" THEN 61
RU 621 IF USR(CH,ADR("IJKLNO"),N,C6) THEN 63
ZI 622 IF N$="P" THEN 664
IQ 623 IF N$="f" THEN 690
SK 625 GOTO 52
QX 630 REM
DF 631 IF L>70 THEN 52
OT 632 GOSUB 33:A=USR(CH,ADR(";<3>?"),N,C5):IF NOT A THEN 52
UP 633 IF N$=";" THEN 62
UT 634 IF N$="<" THEN ? OK$:NOUN$(60,60)="3":ME$(IN,IN)="3":? "I'm floating!":RETURN
QI 635 IF N$="3" THEN 61
ST 636 IF N$=">" THEN ? OK$:NOUN$(75,75)="?":ME$(IN,IN)="?":RETURN
WC 637 IF N$="?" THEN 61
SV 638 GOTO 52
QZ 640 REM
DH 641 IF L>70 THEN 52
JC 642 IF N$="E" THEN GOSUB 41:? "WOW!":RETURN
HE 643 GOSUB 33:A=USR(CH,ADR(";<3"),N,C3):IF NOT A THEN 52
QU 644 GOTO 633
RB 650 REM
PH 651 R$=LOC$(C1,C1):IF USR(CH,ADR("_♦"),N,C2) AND R$="8" THEN 68
PL 652 IF N$="j" AND R$="V" THEN 68
OB 654 IF (N$="R" OR N$="2") AND R$="[" THEN ? OK$:M=ASC("U"):POP :GOTO TOP
HI 655 IF R$="U" AND USR(CH,ADR("QR"),N,C2) THEN 511
TD 656 IF (N$="R" OR N$="2") AND R$="U" THEN ? OK$:M=ASC("["):POP :GOTO TOP
SZ 658 GOTO 52
RD 660 REM
CT 661 IF L<70 THEN 52
OY 662 IF L>89 THEN R$=LOC$(C1,C1):GOTO 666
PO 663 GOSUB 35:IF USR(CH,ADR("GHIJKLNO"),N,C8) THEN 55
OC 664 IF N$="P" THEN ? OK$:? "The wall revolves!!":M=M+C1:POP :GOTO TOP
TC 665 GOTO 62
SY 666 IF USR(CH,ADR("Z[\_bcf"),N,C7) THEN 55
OD 667 IF N$<>"g" THEN 62
XD 668 IF R$="D" OR R$="E" THEN M=M+C1:? "Whoops!":POP :GOTO TOP
BV 669 IF R$="F" THEN 62
QF 670 IF R$="=" OR R$="J" THEN 62
XB 672 GOSUB 36
RH 680 REM
CX 681 IF L<70 THEN 52
QO 682 IF L>89 THEN R$=LOC$(C1,C1):GOTO 685
JA 683 GOSUB 35:IF USR(CH,ADR("GHIJKLNOP"),N,C9) THEN 55
TD 684 GOTO 62
MA 685 IF USR(CH,ADR("Z[\_bc"),N,C6) THEN 55
MI 686 IF N$<>"g" THEN 692
BA 687 IF R$="E" OR R$="F" THEN M=M-C1:? "Whoops!":POP :GOTO TOP
AY 688 IF R$="D" THEN 62
RT 689 IF R$="=" THEN ? "It's the doorbell.":? CHR$(253):RETURN
LY 690 IF R$="J" THEN ? "A secret exit in the room appears":M$(340,340)="K":RETURN
SA 691 GOTO 60
NH 692 IF N$<>"f" THEN 62
UT 693 IF R$="H" THEN M=M+C1:? "The wall revolves!":POP :GOTO TOP
XL 694 GOSUB 36
QS 700 REM
JF 701 IF N$<>"a" THEN 52
JZ 702 R$=LOC$(C1,C1):IF R$="9" THEN ? OK$:M=M+C1:POP :GOTO TOP
OO 703 IF R$=":" THEN ? OK$:M=M-C1:POP :GOTO TOP
WU 704 GOSUB 36
QU 710 REM
DC 711 IF L>70 THEN 52
UN 712 GOSUB 33:IF N$<>"2" THEN ? "Try the rope.":RETURN
HM 713 IF LOC$(C1,C1)="U" THEN GOSUB 37:N$="Q":GOSUB 31:LOC$(H,H)="R":NOUN$(145,145)="R":N$="2":GOTO 421
SQ 714 GOTO 62
QW 720 REM
FA 721 IF L<80 THEN 64
XQ 722 IF L>89 THEN 725
LG 723 A=USR(CH,ADR("ESTUVWX"),N,C7):IF NOT A THEN 64
KI 725 R$=LOC$(C1,C1):IF N$="h" AND R$="C" THEN 728
UP 726 IF USR(CH,LOC8,ADR("J"),C7) AND N$="h" THEN N$="J":GOTO 506
WV 727 GOSUB 35
JN 728 GOSUB 63:? "Not allowed":RETURN
QY 730 REM
GZ 731 IF L>68 THEN 53
VD 732 A=USR(CH,ADR(":>?B"),N,C4):IF NOT A THEN 740
BJ 734 GOSUB 33:IF N$=">" THEN ? OK$:NOUN$(75,75)="?":ME$(IN,IN)="?":POP :GOTO TOP
VX 735 IF N$="?" THEN 61
CO 736 IF N$="B" THEN ? "Try the fuse.":RETURN
YA 737 IF N$=":" THEN ? OK$:GOSUB 1800:? "It's gone out!":RETURN
UX 740 IF N$<>"D" THEN 52
YN 741 A=USR(CH,ME,ADR(":"),C7):IF NOT A THEN 49
VZ 742 GOSUB 32:IF IN THEN ? "Drop it first.":RETURN
DA 743 GOSUB 31:IF NOT HE THEN 36
KW 745 ? "Fizz":LOC$(H,H)="/":GOSUB 1800:IF USR(CH,LOC8,ADR("B"),C7) THEN 747
FW 746 GOSUB 62:POP :GOTO TOP
XW 747 N$="B":GOSUB 31:? "B-O-O-M":LOC$(H,H)="/"
TM 750 IF LOC$(C1,C1)<>"K" THEN ? "The guards heard the bang...":R$="DEAD":POP :GOTO TOP
IE 751 ? "The safe disintegrates!":N$="L":GOSUB 31:LOC$(H,H)="=":POP :GOTO TOP
RE 760 REM
DM 761 IF L>70 THEN 52
OJ 762 GOSUB 35:GOSUB 39:IF N$<>"2" THEN 52
NJ 763 IF LOC$(C1,C1)<>"U" THEN 406
KH 764 ? OK$:LOC$(H,H)="/":ME$(IN,IN)=N$:IF USR(CH,LOC8,ADR("Q"),C7) THEN POP :GOTO TOP
NM 765 N$="R":GOSUB 31:LOC$(H,H)="Q":NOUN$(145,145)="Q":POP :GOTO TOP
```

```
RG 770 REM
GX 771 A=USR(CH,ADR("2_"),N,C2):IF  NOT A
     THEN 52
XA 772 IF N$="2" THEN GOSUB 33:? "Try tyi
     ng it.":RETURN
OD 774 IF LOC$(C1,C1)="8" THEN GOSUB 54:?
     "and ";:GOTO 55
SJ 775 GOTO 60
RI 780 REM
GK 781 IF L>93 THEN 53
HD 782 R$=LOC$(C1,C1):A=USR(CH,ADR("Z[\")
     ,N,C3):IF  NOT A THEN 787
XL 783 IF R$<>"B" THEN 63
TT 784 IF N$="Z" AND USR(CH,ME,ADR("A"),C
     7) THEN ? OK$:NOUN$(170,170)="[":RETUR
     N
NR 785 IF N$="Z" THEN 49
SZ 786 GOTO 61
HR 787 GOSUB 41:IF N$="L" THEN 63
TG 788 GOTO 52
RK 790 REM
BJ 791 A=USR(CH,ADR("QR"),N,C2):IF  NOT A
     THEN 795
UG 792 GOSUB 35:IF N$="Q" THEN 713
SS 793 GOTO 61
JR 795 A=USR(CH,ADR("Z[\"),N,C3):IF  NOT
     A THEN 52
GT 796 IF LOC$(C1,C1)<>"X" THEN 53
JO 797 IF N$="\" THEN ? "Try opening it."
     :RETURN
QT 798 N$="F":GOSUB 32:IF  NOT IN THEN ?
     "No handle!":RETURN
KD 799 ME$(IN,IN)="/":? OK$:NOUN$(170,170
     )="\":RETURN
QT 800 REM
WO 801 A=USR(CH,ME,ADR("8"),C7):IF  NOT A
     THEN 49
JC 802 GOSUB 41:A=USR(CH,ADR("NO"),N,C2):
     IF  NOT A THEN 52
CW 803 IF N$="O" THEN 61
DM 804 GOSUB 37:? OK$:GOSUB 58:LOC$(H,H)=
     "A":GOSUB 31:LOC$(H,H)="O":NOUN$(135,1
     35)="O":POP :GOTO TOP
QV 810 REM
AT 811 IF N$="?" THEN GOSUB 33:ME$(IN,IN)
     =">":NOUN$(75,75)=">":? OK$:POP :GOTO
     TOP
KY 812 IF N$<>"d" THEN 52
VM 813 IF LOC$(C1,C1)="B" AND USR(CH,ME,A
     DR("C"),C7) THEN N$="C":GOTO 421
UW 814 GOTO 49
HR 1800 FOR I=C0 TO 50:NEXT I:RETURN
XQ 1810 ? :? "Play again?":INPUT R$:IF R$
     (C1,C1)="Y" THEN RUN
SC 1820 GOTO 1820
GZ 1900 REM RESTORE
AP 1901 CLOSE #C1:TRAP 1901:OPEN #C1,C4,C
     0,"K:":? MEDIA$:INPUT N$:N$=N$(C1,C1)
MM 1902 L=USR(CH,ADR("DT"),N,C2):IF L=C0
     THEN CLOSE #C1:RETURN
WI 1903 TRAP 1903:? PREP$:GET #C1,L:CLOSE
     #C1
NW 1904 V$="D:ADVENT.SAV":IF N$="T" THEN
     V$="C:":POKE 764,C12
ZO 1905 POKE 559,C0:OPEN #C1,C4,C0,V$:TRA
     P 1909:FOR I=C1 TO 526 STEP 105:INPUT
     #C1,B$:M$(I,I+104)=B$:NEXT I
DM 1906 FOR I=C1 TO 219 STEP 55:INPUT #C1
     ,B$:NOUN$(I,I+54)=B$:NEXT I:CLOSE #C1:
     POKE 559,34
SK 1907 ME$=M$(613,620):GOSUB 30:LOC$=M$(
     L,L+C13)
NY 1908 POKE 559,34:TRAP 4000:RETURN
ZT 1909 ? "TAPE ERROR":TRAP 4000:RETURN
XJ 1910 REM SAVE
VG 1911 OPEN #C1,C4,C0,"K:":? "Type S to
     save game or RETURN to quit":GET #C1,L
     :IF L<>83 THEN CLOSE #C1:NEW
YP 1912 TRAP 1912:? MEDIA$:INPUT N$:N$=N$
     (C1,C1):L=USR(CH,ADR("DT"),N,C2):IF L=
     C0 THEN CLOSE #C1:TRAP 4000:RETURN
WY 1913 TRAP 1913:? PREP$:GET #C1,L:CLOSE
     #C1
NZ 1914 V$="D:ADVENT.SAV":IF N$="T" THEN
     V$="C:":POKE 764,C12
OY 1915 POKE 559,C0:OPEN #C1,C8,C0,V$:TRA
     P 4000:M$(613,620)=ME$:GOSUB 30:M$(L,L
     +C13)=LOC$
SN 1916 FOR I=C1 TO 526 STEP 105:? #C1;M$
     (I,I+104):NEXT I
EF 1917 FOR I=C1 TO 219 STEP 55
UM 1918 ? #C1;NOUN$(I,I+54)
AX 1919 NEXT I:CLOSE #C1:POKE 559,34
AX 1920 RETURN
HQ 1999 END
NI 2000 READ C0,C1,C2,C3,C4,C5,C6,C7,C8,C
     9,C10,C12,C13,C14,TOP:RETURN
LR 2001 DATA 0,1,2,3,4,5,6,7,8,9,10,12,13
     ,14,200
PK 2002 DIM M$(630),LOC$(14),NOUN$(275),V
     ERB$(220),DIR$(C8),OK$(C2),R$(28),ME$(
     C8),V$(12),N$(C4),MEDIA$(12),PREP$(39)
GQ 2003 DIM DE$(101),B$(100)
SX 2004 V=ADR(V$):N=ADR(N$):ME=ADR(ME$):D
     E=ADR(DE$):LOC=ADR(LOC$):LOC8=LOC+C7
LJ 2005 M$(C1)="/":M$(484)="/":M$(C2)=M$:
     FOR I=485 TO 630:M$(I,I)="/":NEXT I:DI
     R$="NSEWUDIQ":OK$="OK"
VI 2006 MEDIA$="Tape or Disk":PREP$="Read
     y Blank tape or disc & press RETURN"
YV 2008 NOUN$="APPL1ROPE2AXE*4WINE5CRAT5B
     OTT6BLOO6CAKE7FILE8PUMP9MATC:BROO;PACK
     =POWE=LANT>LAMP>BOOK@KEY*ADYNABBLANC"
LM 2009 DE$="FUSEDPRINEHANDFPAINGCOFFISAF
     ELGRATNHOOKPWELLQCOOKSBUTLUWIZAWSIGNYD
     OORZFORE]COTT^DRAW_CAST♦MOATaWINDb"
XJ 2010 NOUN$(LEN(NOUN$)+C1)=DE$
UR 2011 DE$="FIREdBRICfKNOBgBUTTgGUARhMAN
     *hPASSiTOWEjLIFTkNORTuSOUTvEASTwWESTxU
     P**yDOWNz"
XR 2012 NOUN$(LEN(NOUN$)+C1)=DE$
VS 2013 VERB$="EXAMALOOKATAKEBGET*BDROPCT
     HROCUSE*DGIVEEGO**FENTEFCROSFOPENGBREA
     HSMASHTOUCIREADJEAT*KSWALKDRINLJUMPM"
SI 2014 DE$="HELPNMOVEOSTRAOON**PRIDEQMOU
     NQCLIMRPULLSPUSHTPRESTSWIMUTIE*VKILLWA
     TTAWLIGHXUNTIYLOWEZUNLO[FIX*\MEND\"
FT 2015 VERB$(LEN(VERB$)+C1)=DE$
OH 2016 DE$="REPA\FILE]EXTI^SMOT^"
GB 2017 VERB$(LEN(VERB$)+C1)=DE$
UG 2020 FOR I=C1 TO 602 STEP C14:READ LOC
     $:M$(I,I+LEN(LOC$))=LOC$:NEXT I
HA 2021 M$(613,620)="///////1":LOC$=M$(C1
     ,C14):ME$=M$(613,620):M=ASC("1")
BE 2025 DATA 1/2////,21/4///,3//2///1,4/5
     /2//,54//7//,6///5//24,7/85///,87//9//
     Y,9//8///,://////,;:///</5,<//=/>;
RV 2026 DATA =///<//Y,>//?/A<,?/@D>//5,@?
     /////;:,A//BRC>,B//EA//G,C/////A,D///?
     //,E///B//,F///G//,G//F///U,HB/////
YI 2027 DATA I///H//I,J/I////,K///I//L,LM
     BN///,M/L////@,N//OL//N,O///N//BD,P///
     B//P,QP/////W,R//AS//,SRTST//
QZ 2028 DATA TSSUS//9,U/V/T//YQ,VU//W//,W
     //V/X/,X/////W,Y//////E,Z//////,[////U
     /F
HH 2030 FOR I=1536 TO 1569:READ A:POKE I,
     A:NEXT I
VS 2031 DATA 112,112,112,66,0,124,2,2,2,2
     ,2,2,2,66,64,156,2,2,2,2,2,2,2,2,2,2
     ,2,2,2,2,65,0,6
CQ 2032 FOR I=1570 TO 1592:READ A:POKE I,
     A:NEXT I
KM 2033 DATA 104,165,84,133,203,141,240,2
     ,169,0,133,88,169,124,133,89,169,0,133
     ,84,133,85,96
```

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CASTLE MORGUE continued

```
GS 2034 FOR I=1593 TO 1656:READ A:POKE I,
   A:NEXT I
EQ 2036 DATA 169,2,160,0,153,6,6,200,204,
   164,6,208,247,169,66
CY 2037 DATA 153,6,6,200,165,209,153,6,6,
   200,165,208,153,6,6,200,169,2,153,6,6,
   200,192,25,208,246,169,64,141,190
ND 2038 DATA 2,169,0,141,240,2,169,64,141
   ,190,2,169,0,141,182,2,76,95,228
BE 2040 FOR I=1710 TO 1737:READ A:POKE I,
   A:NEXT I
LT 2041 DATA 104,169,124,133,204,169,0,13
   3,203,168,145,203,200,192,255,208,249,
   145,203,230,204,165,204,201,127,208,23
   4,96
DD 2042 FOR I=1738 TO 1780:READ A:POKE I,
   A:NEXT I:CH=1738
WO 2043 DATA 104,104,133,206,104,133,205,
   104,133,204,104,133,203,169,0,168,133,
   213,177,203,133,207,104,104,168
TJ 2044 DATA 136,48,10,165,207,209,205,20
   8,247,200,132,212,96,169,0,133,212,96
UU 2045 FOR I=1 TO 77:READ A:DE$(I,I)=CHR
   $(A):NEXT I
FV 2047 DATA 104,104,133,206,104,133,205,
   104,133,204,104,133,203,169,0,133,213,
   104,104,170,202,240,49,24,165,205,105,
   5,133
DK 2048 DATA 205,165,206,105,0,133,206,24
   ,160,0,177,203,209,205,208,231,200,177
   ,203,209,205,208
GB 2049 DATA 224,200,177,203,209,205,208,
   217,200,177,203,209,205,208,210,200,17
   7,205,133,212,96,169,0,133,212,96
MD 2050 FOR I=1657 TO 1698:READ A:POKE I,
   A:NEXT I
NL 2052 DATA 104,165,203,133,84,173,166,6
   ,133,208,133,89,173,165,6,133,209,133,
   88,174,164,6,232,24,165,209,105,40
DF 2053 DATA 133,209,165,208,105,0,133,20
   8,224,0,202,208,238,96
NO 2055 FOR I=C1 TO C14:READ A:R$(I,I)=CH
   R$(A):NEXT I
XG 2056 DATA 104,120,169,57,141,34,2,169,
   6,141,35,2,88,96
AS 2060 RETURN
```

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THE SOFTWARE REVIEWS

MR DO VERSUS MR DIG

MR DO
Datasoft
48k cassette
£9.95

MR DO is a straight conversion of the arcade game of the same name. Having been slightly disappointed by the Atari version of DIG-DUG (though an improved version of the 16K ROM is apparently available in the States) I was anxious to see how well this version of MR DO from Datasoft compares with the arcade original.

The game is a long loader - well over 15 minutes, in fact - and quite obviously uses every single byte of the specified 48K. Whether it's worth the wait or not is another matter!

The action takes place in a field, of all places, during cherry harvest time. The idea is to guide MR DO around the screen collecting the cherries whilst defending yourself against the inevitable monsters. MR DO's main weapon is his magic powerball, which he throws at the monsters in order to destroy them. It takes a little while for the ball to return to his hand though, so you will have to seek out alternative ways to dispose of the monsters. Dotted about the field are several giant apples. These can be dropped onto the monsters for large bonus points. Boss monsters appear at various stages during the game. The Boss monsters carry letters corresponding to the word 'EXTRA' at the top of the screen. If you knock out all the individual letters making up the word 'EXTRA' you gain a bonus MR DO. A nice little animated sequence accompanies this event and gives you a short break from the proceedings. Time to catch your breath before returning to the action again.

Other types of monster you will encounter are henchmen - these appear along with the Boss monster and can be turned to harmless apples by knocking out the Boss monster - and diggers. Any monster can turn into a digger, and these are particularly dangerous as they can dig tunnels through the soil to get at MR DO.

Watch out for the lucky diamonds which spill out of the apples on very rare occasions (make that extremely rare as I never came across one). These are worth a massive 8000 points, but, more importantly, they enable you to exit that particular screen without having to kill the remaining monsters.

The sound effects are excellent in this game and the tunes are sufficiently muted so as not to annoy you too much. In any case, they can be turned off altogether by pressing the 'S' key. There is also a facility for left-handed players, which involves pressing the 'L' key and revolving the joystick a quarter turn clockwise. A good idea this, and one which other programmers may like to copy.

Sadly, the graphics just aren't up to scratch considering the amount of memory used. My main criticism concerns the game characters, which are rather poorly defined. Colour choice could also have been better, I feel, and joystick control is awkward and sluggish. I found myself getting caught out far too easily, mainly because MR DO wouldn't respond quickly enough to the controls. The fact that the monsters move at almost twice the speed of MR DO doesn't exactly help matters! I found this a difficult game to get to grips with.

MR DIG ..... Microdeal ..... 32k cassette £6.50

Considering that Microdeal first made their name releasing software for the dreadful Dragon 32 computer, and having had first-hand experience of one of their previous efforts for the Atari, namely 'Danger Ranger', you could hardly blame me for not expecting a great deal from MR DIG. However, I must admit I was pleasantly surprised. MR DIG is a splendid implementation of MR DO and is far and away the best Microdeal game I've ever seen.

Gameplay is fairly authentic to the arcade original, although there are one or two minor differences which may or may not be due to copyright reasons. MR DIG is much easier to play than the Datasoft version. It allows you to select from ten levels of difficulty ranging from 'Big Baby's Level' (easy) through to 'Masochist's Level' (impossible). During the course of the game itself you must complete a combination of several screens on the one level before advancing onto the next level, so you are given a better than even chance of getting the hang of the game early on before things start to get tricky.

On the whole the graphics are excellent. The various game characters are colourful, detailed, and easier to make out than their Datasoft counterparts. I particularly like the diggers in this game - they are very reminiscent of the 'snapjaws' in DONKEY KONG JNR. One tiny criticism concerns MR DIG's powerball. It is dull blue in colour and also a bit on the small side. Consequently you cannot always see if it has returned to MR DIG's hand unless you have bionic eyesight! Joystick response is faultless though, and gives the Datasoft game a proper showing-up in this department.

Sound is generally good, if rather brash at times. Unfortunately, there is no way you can turn it off from the computer, so I'm afraid you're stuck with it unless you turn it off altogether via the TV set.

MR DIG doesn't have the fancy animated sequences of its American rival, but it does have a 'Hall of Fame' high score table which the Datasoft version lacks.

by Jim Short

SUMMARY

Purists may well prefer Datasoft's MR DO as the gameplay more closely follows that of the arcade original. If you're a hot-shot at the arcade game you will certainly find MR DO more of a challenge than MR DIG. Personally, I felt that MR DO was a little too hard and I think MR DIG will appeal to a wider range of computer gamesters.

In a game versus game comparison, I must plump for MR DIG. At £6.50 it is one of the cheapest good quality Atari games on the market. Incidentally, MR DIG was programmed by a lady programmer, Rita Jay. She deserves ten out of ten for this effort. Let's hope we see more games of the calibre of MR DIG for the Atari from other British software companies in the near future.

THE SOFTWARE REVIEWS

DECATHLON
Activision

Fancy yourself as the next Daley Thompson? Activision's DECATHLON gives you the chance to become the world's No. 1 computer athlete.

After booting up the game you are given the option of taking part in a full-blown Decathlon or any of the ten individual events, these being 100 metres, Long Jump, Shot Put, High Jump, 400 metres, 110 metres Hurdles, Discus, Pole Vault, Javelin and 1500 metres. You also have the choice of a 1-4 player game. In a 1-player game, you compete in each event for the highest possible points total. On the track, you run against a computer opponent who acts as a 'pace man' to spur you on to, hopefully, greater things. In 2-4 player games, the players compete against one another and the winner is the player who finishes with the highest number of points.

You control your athlete via the joystick. To get him to run you must toggle the joystick back and forth (left and right) as quickly as possible. All jumping and throwing actions are carried out by pressing the firebutton. Your ultimate success at each event depends primarily on your stamina with the joystick and your timing with the firebutton. Toggling the joystick back and forth at high speed is incredibly energy-sapping and by the time you have completed all ten events you'll probably feel as if you've just taken part in a proper Decathlon - I know I did!

The computer rewards you with a fanfare if you score 1000 points or over in any event. This is more easily accomplished on the field than on the track. I managed to score over 1000 points on every single field event, but the track events were beyond my capabilities, despite the fact that I was using a genuine arcade joystick specially adapted to fit my Atari!

Graphically, this game is very good. The stadium looks exactly like a stadium and comes complete with grandstand and cheering crowd. Sound is adequate without being anything out of the ordinary. Scrolling is excellent - as it always is on the Atari - and the animation is superb - quite the best I've seen on this type of game. If you've seen the terrible animation of the athletes in 'L.A. GAMES 1984' then you'll appreciate what I'm talking about!

DECATHLON is my own personal favourite of all the Track and Field type games currently on the market, mainly because it is so easy to play and also has far more variety than the others. I particularly like the pole vault and high jump events, but in saying that, I found the 1500 metres a bit boring and the 400 metres to be an absolute killer. Minor quibbles apart, this is an excellent game and a worthwhile investment at only £9.95.

A postscript - DECATHLON is a joystick destroyer! Do not attempt to play this game unless you have an extremely rugged joystick, preferably of the micro-switch variety!!!

PITFALL II - LOST CAVERNS
Activision
32k cassette

This game must be one of the best games available for the Atari at the moment. You play the part of Pitfall Harry back in search of treasures, but this time in the lost caverns of Machu Pichu. He is a very active character, not only running and jumping but also climbing, swimming and going up in balloons. There are many dangers facing him such as bats, scorpions, frogs, birds and electric eels.

Pitfall Harry has to hunt through the hundreds of screens to find three objects, a woman called Rhonda, a cat and a ring. Gold bars are scattered about on your way and these give you extra points. An unusual part of this game is that you do not lose lives when you come into contact with a creature, you just return to the last cross you ran over, losing more points the further you are from it. I managed to get all three objects and thought I had completed it, but no, there was another level which I have not yet finished. This next level is even more amazing and more difficult than the first.

The graphics are superb and the game is accompanied throughout by pleasant lively music, which changes when you go up by balloon or are sent back to a cross. PITFALL II is well worth buying at a very reasonable price of £9.95.

Jeremy Askew

Reviews by Jim Short and Jeremy Askew

H.E.R.O. ..... Activision ..... 16k ROM £18.95

Activision are currently converting their top VCS games to run on the Atari Home Computers, using the advanced capabilities of the computers to produce much improved versions of all their popular games. H.E.R.O. is one of the recent conversions and, for my money, is Activision's best game to date.

You control Roderick HERO in his mission to rescue trapped miners from their underground 'prisons'. Roderick is kitted out with all the latest equipment including a miniature jet heli-pac strapped to his back and eye-level lasers built into his helmet. He also carries a supply of dynamite which he uses to blast his way through solid rock walls blocking the various tunnels and passageways. He must then negotiate the labyrinth of tunnels and vertical shafts in order to find the miners who are trapped deep underground. There is only one miner to be rescued on each level of play but HERO has to travel deeper and deeper on each level in his bid to locate the miners. Once rescued the miner will give a wave of a hand whereupon you advance to the next level of play.

HERO will encounter spiders, snakes and other assorted nasties on his travels which he can dispose of with a quick blast of his lasers. Unfortunately the inhabitants of the tunnels tend to lurk in unexpected places and when faced with a choice of passageways a wrong decision invariably proves fatal for our HERO costing him one of his allotted lives. As with most other games, once you memorise the screen layouts, you will know which passageways are safe and which are best avoided.

Some of the tunnels are illuminated by lamps. These are usually positioned in the vertical shafts and HERO must take care not to accidentally knock them out otherwise the whole screen will be plunged into darkness. Definitely not the best way to go about things! In the higher levels of the game, HERO will face many more hazards such as radio-active walls and lava pools which he must negotiate either with the aid of a raft or by precision flying. The choice is yours.

H.E.R.O. is a game which merits the highest possible praise. The graphics are outstanding with horizontal and vertical scrolling up to the usual standard. Sound is excellent and special attention has been paid to the use of colour with, I suspect, extensive use of Display List Interrupts for all those extra colours. Activision certainly know how to get the best from the Atari.

If you are looking for a highly original game with multi levels of play, a game which is a constant challenge and also one which you will not tire of too easily, then look no further. H.E.R.O. is the game for you.

THE SOFTWARE REVIEWS

DESMOND'S DUNGEON
Creative Sparks
16k cassette
£8.95

In the past I've always viewed the news of a recent release from Thorn EMI with mixed feelings, let's face it, they are hardly in the Synapse class. Since switching over to market their software under the 'Creative Sparks' banner however, they have improved no end. Two of their previous efforts - JAVA JIM and SPECIAL DELIVERY were both original and highly entertaining games, and now, with the release of DESMOND'S DUNGEON, they have come up with a game which proves that the programmers at Creative Sparks are trying to compete with the best.

The game scenario is as follows: Desmond has accidentally stumbled across a seemingly abandoned dungeon filled with gold. All he has to do is round up the gold and make his escape. As you would expect, his task is not quite so easy as it first appears. The gold is scattered about over several levels of the dungeon and Desmond must gain access to all these levels with the aid of a series of ladders - a customary item in this type of game. To make things a little more difficult, Desmond can only carry one bag of gold at a time and he must deposit each individual bag in the 'treasure chest' at the top of the screen before heading off in search of another one.

Huge spiders patrol the dungeon levels. Desmond must avoid them by jumping over them or by dodging up and down the ladders whenever the spiders are approaching. If he comes into contact with a spider he will be momentarily stunned and it will also cost him some power. He begins the game with three lives and a full quota of power. Each time his power is reduced to zero he loses a life and you then have to tackle that particular screen all over again.

Predictably, the spiders are not Desmond's only worry. The evil old Baron who owns the dungeon is not about to give up the gold without a fight, and he flies across the top of the screen in his plane, bombarding Desmond with an assortment of missiles. Each direct hit will cost Desmond some of that precious power, but avoiding all the various objects is more difficult than you can imagine. The Baron's missiles are very unpredictable and have a nasty habit of taking an unexpected 'bounce' in Desmond's direction.

If Desmond manages to get through the dungeon screen unscathed you then advance onto the vault screen. Here, Desmond must transfer his gold into the vault with the aid of a mechanical grab at the top of the screen. Once again, the Baron and the spiders will make things as difficult for him as possible. If you complete this screen you then progress to the next level of play, where the whole process begins again. In the higher levels of play, Desmond must avoid fires and collect keys to recover bags of gold which are out of reach behind locked doors. All in all there is plenty to keep even the most dedicated gamester occupied for hours.

DESMOND'S DUNGEON is a classy piece of software from start to finish, right down to the colourful title screen which kicks off the program. Graphics, sound and colour are of the highest quality and the animation, particularly of Desmond himself, is quite excellent. A further interesting feature is that you can start the game from any level, providing you have attained that level in a previous game. No more having to start from level 1 all the time!

DESMOND'S DUNGEON is the best 16K program I've seen in a long, long time. THORN-EMI (Creative Sparks) deserve a great deal of credit for supporting the Atari faithfully over the years. Atari owners should repay that loyalty by purchasing this game. At £8.95 (cassette) it's an absolute steal, especially for those people who still haven't had their computers upgraded yet.

Reviewed by Jim Short

GYRUSS ..... Parker Bros ..... 16k ROM .....

In Gyruss you are controlling a spaceship which is flying from Neptune to Earth. The ship can move in a circular pattern around the screen. Flying from Neptune to Earth is not as easy as it sounds. The intervening space is crowded with several types of enemy spacecraft and you must destroy as many as possible in order to reach Earth safely.

The first type of enemy are planes which are high-speed attack vehicles flying in several different formations. They may appear from far out, in front of you, or they can launch a surprise attack and come speeding past you from behind. These ships can shoot missiles at you, but they don't stop there. If they get half a chance they'll fly themselves straight into you. There are also molecular satellites, so named because they look like giant molecules. These appear in threes, fly in formation and shoot missiles at you. If you destroy the middle satellite you can fire double bullets. The third type of enemy spacecraft is the electromagnetic wave satellite. These come in pairs, shooting a deadly wave of energy between them. There are also meteors coming from out of the distance, which you must avoid.

Each time you destroy a wave of enemy spacecraft your vessel 'warps' through space, getting closer and closer to Earth. On your way you pass the outer planets: Neptune, Uranus, Saturn, Jupiter and Mars. Each time you reach a planet you play a 'chance stage'. In these stages you get a chance to destroy enemy ships for bonus points. The spacecraft don't fire and cannot destroy you. You can get over 10,000 points during the chance stage, so shooting skill is a definite help here. Bonus ships are awarded at 60,000 points and every 100,000 points after that.

GYRUSS is in the shoot-'em-up class, but is definitely something special. Something that makes the game extra special is the great music played throughout. I'm sure this will be a very popular game.

Jeremy Askew

BC'S QUEST FOR TIRES
Sierra On-Line
16k ROM

This game is set in the Stone Age with the player controlling a caveman called B.C. who rides on a stone wheel. B.C. has to complete various stages having many hazards on his way to finding his girlfriend. To avoid the hazards he can jump, duck, go backwards and forwards and increase or decrease speed. The game is set on a multiple scrolling screen which is very cleverly done. B.C. is in the foreground which scrolls quite fast. The background and clouds both also scroll at different speeds. The graphics are very good and are created in a cartoon style. The game is amusing in places, especially when a cavewoman says 'JUMP SUCKER'. It's a shame the game is not very addictive. This is because once you have completed it there is not much of a challenge left. It is not a game I play a lot, maybe just once in a while to show off its graphics.

Jeremy Askew

Matthew's Label Maker

by Matthew Jones

compatible with any printer

This program started because I could not find a local supplier of one across labels but it has since grown into a comprehensive label program offering full editing, saving and loading facilities, the ability to modify parameters and a full Help screen. It should be compatible with any printer although, as written, the advanced facilities of enlarged, underlined or 'thick' text apply only to the Epson printers.

Labels can be defined to any size within reasonable limits and can be printed one, two or three across with as many as 100 down although this could be increased if desired. Inter label gaps and label sizes are all catered for and inline editing with insert/delete character or line are included. Error messages are given and error trapping is included.

The program is not intended to be a mailing list handler but the ability to save and load labels to cassette or disk is provided. The filename C: should be used for cassette and the default for disk is D: unless a drive number is specified.

All functions are covered on the Help screen but I suggest that on first use you fill the label screen with characters and print two labels to see how the format matches your own labels. Make sure that you adjust the parameter for number of labels across first. Label size and inter label gaps can then be adjusted to suit. When you are satisfied that you have the optimum label specification, save it as BLANK.LBL. This can then be used as a template each time you wish to define or print a label.

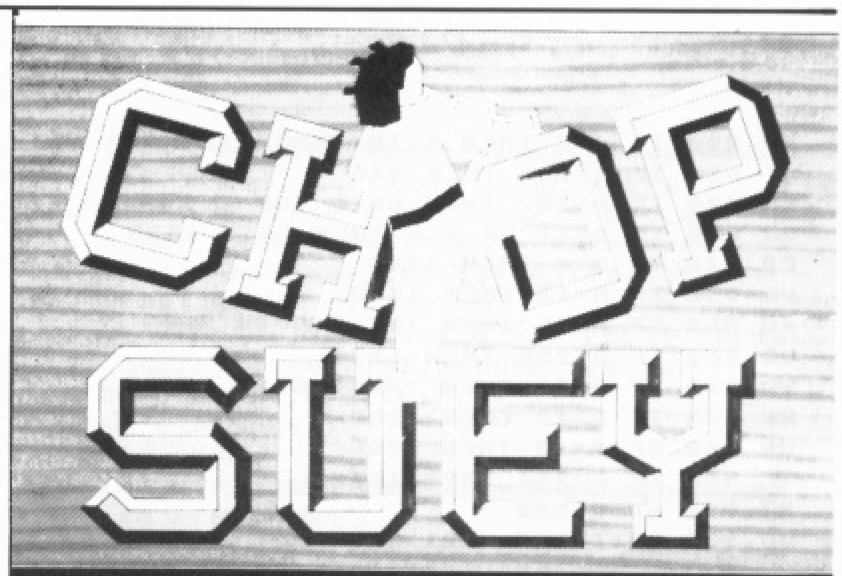
The special facilities of the Epson are contained in control and Escape characters between lines 2200 and 2300 and these can be changed to suit your own printer.

```
EI 1 REM ******************************
QY 2 REM *     MATTHEWS LABEL MAKER     *
IW 3 REM *  PAGE 6 MAGAZINE - ENGLAND  *
EL 4 REM ******************************
JG 10 DIM A$(280),IN$(50),OUT$(400):A$="
   ":A$(280)=" ":A$(2)=A$
CF 20 XMAX=34:YMAX=8:X=0:Y=0:LBL=1:SBL=4:
   LA=2:LD=1:POKE 82,2:POKE 710,144
CF 30 OPEN #3,4,0,"K:"
FW 40 DIM SPC$(16):SPC$="
   "
OF 100 REM ##############################
UQ 110 REM #                            #
CF 120 REM #   Matthews' Label Maker    #
UU 130 REM #                            #
BQ 140 REM #  A public domain program   #
BJ 150 REM #    for the editing and     #
JW 160 REM # printing of labels on the  #
UL 170 REM #      Atari computers.      #
VE 180 REM #                            #
HK 190 REM #  This program will print   #
LI 200 REM # any size of label, on any  #
RU 210 REM #    format of label paper,  #
BN 220 REM #   from one to three wide.  #
BX 230 REM #(three copies will be made)#
UX 240 REM #                            #
GR 250 REM #   All size labels can be   #
KH 260 REM #   used, with any spacing   #
SL 270 REM #        between them.       #
VF 280 REM #                            #
VL 290 REM #  Commonly printed labels   #
NT 300 REM #can be saved for later use.#
US 310 REM #                            #
PB 320 REM #  Underline and enlarged    #
JW 330 REM # text on EPSON printers is  #
DM 340 REM #         available.         #
VA 350 REM #                            #
FZ 360 REM # This program was written   #
AI 370 REM # by      Matthew Jones      #
PN 380 REM #   Prestel Mbx 019996027    #
VV 385 REM #                            #
OZ 390 REM ##############################
TP 400 ? "↖↓                  Matthew's"
WG 405 ? "                 ██████████":? "
           LABEL MAKER  ":? "
       ██████████"
CW 407 ? "                public domain"
HD 410 ? :? :? :? :? "          Use [CONTROL]-
   [H] for Help"
QP 420 GOSUB 1000
ZG 500 GET #3,A:IF A<32 THEN GOTO 700
WN 510 IF A>124 AND A<128 THEN GOTO 700
UI 520 IF A>154 AND A<160 THEN GOTO 700
UK 530 IF A>252 THEN GOTO 700
WS 540 T=X+(35*Y)+1:A$(T,T)=CHR$(A)
JM 550 ? CHR$(A);:X=X+1:IF X<XMAX THEN GO
   TO 500
DX 560 X=0:Y=Y+1:IF Y=YMAX THEN Y=0
SQ 570 POSITION 2,12+Y:? "→";:GOTO 500
JR 600 IF X<0 THEN X=XMAX-1:GOTO 650
JT 610 IF X=XMAX THEN X=0:GOTO 650
LN 620 IF Y<0 THEN Y=YMAX-1:GOTO 650
LJ 630 IF Y=YMAX THEN Y=0:GOTO 650
DA 650 POSITION 2+X,12+Y:? "→";:GOTO 500
QV 700 IF A=29 THEN Y=Y+1:GOTO 600
SC 710 IF A=28 THEN Y=Y-1:GOTO 600
NS 720 IF A=30 THEN X=X-1:GOTO 600
MP 730 IF A=31 THEN X=X+1:GOTO 600
VU 740 IF A=125 THEN GOTO 900
YG 750 IF A=126 THEN GOTO 920
TA 760 IF A=127 THEN X=0:Y=0:GOTO 650
GY 770 IF A=155 THEN X=0:Y=Y+1:GOTO 600
MF 780 IF A=1 THEN X=0:GOTO 650
GL 790 IF A=26 THEN X=XMAX-1:GOTO 650
```

```
PR 800 IF A=3 THEN X=INT(XMAX/2):GOTO 600
HI 810 IF A=156 THEN 940
FO 820 IF A=157 THEN GOTO 980
VJ 830 IF A=21 OR A=5 THEN GOTO 1150
FP 840 IF A=8 THEN 1300
VR 850 IF A=13 THEN 1500
ZU 860 IF A=16 THEN THK=0:GOTO 2000
VC 865 IF A=255 THEN 1270
YO 870 IF A=20 THEN THK=1:GOTO 2000
XK 875 IF A=19 THEN 3100
UR 880 IF A=12 THEN 3200
TE 885 IF A=254 THEN 1250
NT 890 GOTO 500
JG 900 POSITION 2,21:? "           CLEAR LABEL ":GOSUB 1200:IF A<>89 THEN 500
CO 910 A$=" ":A$(280)=" ":A$(2)=A$:X=0:Y=X:GOSUB 1000:GOTO 500
FM 920 IF X=0 THEN GOTO 500:REM DELETE
TS 930 X=X-1:T=X+1+(35*Y):A$(T,T)=" ":? "← ←";:GOTO 500
MI 940 POSITION 2,21:? "           DELETE LINE ":GOSUB 1200:IF A<>89 THEN 500
FN 950 IF Y=YMAX-1 THEN GOTO 970
TI 960 FOR I=Y TO YMAX-2:T=(I*35)+1:A$(T,T+34)=A$(T+35,T+69):NEXT I
OO 970 T=((YMAX-1)*35)+1:A$(T,T+34)="                                   ":GOSUB 1000:GOTO 500
IO 980 POSITION 2,21:? "           INSERT LINE ":GOSUB 1200:IF A<>89 THEN 500
OB 985 IF Y=YMAX-1 THEN GOTO 995
II 990 FOR I=YMAX-2 TO Y STEP -1:T=(I*35)+1:A$(T+35,T+69)=A$(T,T+34):NEXT I
US 995 T=(Y*35)+1:A$(T,T+34)="                                   ":GOSUB 1000:GOTO 500
HW 1000 REM
EA 1090 POSITION 2,11
AQ 1100 ? "┌";:FOR I=1 TO XMAX:? "─";:NEXT I:? "┐";
PL 1110 FOR I=1 TO YMAX:? "←↓|";:NEXT I:? "↓←┘";
ZI 1120 FOR I=1 TO XMAX:? "←←─";:NEXT I:? "←←└"
UV 1130 FOR I=YMAX-1 TO 0 STEP -1:? "↑↑|";A$((I*35)+1,(I*35)+XMAX):NEXT I:? "↑→";
QA 1140 GOTO 1240
IK 1150 IF A=21 THEN A=20
WY 1160 IF A=5 THEN A=19
RD 1170 GOTO 540
IY 1200 POSITION 2,22:? "         ARE YOU SURE ? (Y/N)";
EE 1210 GET #3,A:IF A<>89 AND A<>78 AND A<>110 AND A<>121 THEN 1210
QL 1220 IF A=121 THEN A=89
WR 1230 POSITION 2,21:? "↓↓↓↓"
HY 1240 POSITION 2+X,12+Y:? "→";:RETURN
DQ 1250 IF X=34 THEN GOTO 1260
TZ 1255 T=(Y*35)+1:FOR I=X TO 33:A$(T+I,T+I)=A$(T+I+1,T+I+1):NEXT I
SB 1260 A$(T+34,T+34)=" ":GOSUB 1000:GOTO 500
FW 1270 IF X=34 THEN GOTO 1280
OQ 1275 T=(Y*35)+1:FOR I=34 TO X+1 STEP -1:A$(T+I,T+I)=A$(T+I-1,T+I-1):NEXT I
JL 1280 A$(T+X,T+X)=" ":GOSUB 1000:GOTO 500
DI 1300 ? "K            ":? "          HELP ":? "          "
FG 1310 ? "┌──────────┬─────────────────────┐"
CB 1320 ? "| [CTRL]+ |    Action initiated |"
VI 1330 ? "├──────────┼─────────────────────┤"
SN 1340 ? "| A,C,Z    | Move cursor in line. |"
OL 1342 ? "| DELETE   | Delete char, move line.|"
BI 1345 ? "| INSERT   | Insert space,move line.|"
RU 1350 ? "|    U (Ś+) | Underline On/Off |"
RS 1360 ? "|    E (Ś•) | Enlarged On/Off |"
VU 1370 ? "├──────────┼─────────────────────┤"
SG 1380 ? "|    M     | Modify parameters |"
VJ 1390 ? "|    S     | Save current label |"
AI 1400 ? "|    L     | Load a label |"
XS 1410 ? "|    P     | Print label(s) |"
RO 1420 ? "|    T     | Thick printing. |"
ZB 1430 ? "├──────────┴─────────────────────┤"
GS 1440 ? "|[SHIFT] with [DELETE] or [INSERT] |"
LN 1450 ? "| act on whole lines of the label. |"
KE 1460 ? "|To clear label, use [SHIFT][CLEAR]|"
CT 1465 ? "└────────────────────────────────┘"
FB 1470 ? "      Press any key to continue";
MV 1480 GET #3,A:GOTO 400
JV 1500 ? "K↓            ":? "     PARAMETER SETTINGS ":? "            "
VJ 1510 ? :? :? "  1. Label width (characters) = ";XMAX
UN 1520 ? :? "  2. Label depth (lines) = ";YMAX
LY 1530 ? :? "  3. Lines between labels = ";LBL
PC 1540 ? :? "  4. Spaces between labels = ";SBL
DG 1550 ? :? "  5. Number of labels across = ";LA
XC 1560 ? :? "  6. Number of labels down = ";LD
AB 1580 POSITION 2,19:? "    Press number to change,":? "          or [RETURN] to exit."
XW 1590 X=0:Y=0
WC 1600 GET #3,A:IF A=155 THEN GOTO 400
TS 1610 IF A<49 OR A>54 THEN GOTO 1600
KO 1620 POSITION 2,18:? "↓↓↓↓↓↓↓";
FA 1630 A=A-48:ON A GOTO 1640,1650,1660,1670,1680,1690
UR 1640 ? "  Enter new label width":T=34:B=5:GOSUB 1800:XMAX=A:GOTO 1500
HA 1650 ? "  Enter new depth for label":T=8:B=3:GOSUB 1800:YMAX=A:GOTO 1500
CJ 1660 ? "  Enter new line spacing":T=9:B=1:GOSUB 1800:LBL=A:GOTO 1500
FR 1670 ? "  Enter new number of spaces":T=15:B=1:GOSUB 1800:SBL=A:GOTO 1500
MN 1680 ? "  Enter number of labels across":T=3:B=1:GOSUB 1800:LA=A:GOTO 1500
WA 1690 ? "  Enter number of labels down":T=100:B=1:GOSUB 1800:LD=A:GOTO 1500
```

Matthew's Label Printer continued

```
OP 1800 POSITION 2,21:TRAP 1830:IN$="":IN
   PUT IN$
DL 1804 IF IN$="" THEN POP :GOTO 1500
GW 1806 A=INT(VAL(IN$))
XQ 1810 IF A<B OR A>T THEN POSITION 2,20:
   ? "↑Out of range error- Please retry↓↑
   ↓↓↓↓":GOTO 1800
UT 1820 TRAP 40000:RETURN
CB 1830 POSITION 2,20:? "↑Entry error- Pl
   ease retry↓↓↓↓↓↓":GOTO 1800
AZ 2000 B=0:U=1:E=0:REM PRINT ROUTINE
PI 2010 TRAP 2350
HE 2020 POSITION 2,21:? "              P
   RINTING";
KP 2180 FOR YP=0 TO YMAX-1:XP=0:E=0
NJ 2200 IN$="":FOR I=1 TO XMAX:T=I+(YP*35
   ):A=ASC(A$(T,T)):IF A>31 THEN GOTO 225
   0
OJ 2210 IF A<>20 THEN 2230
EJ 2215 U=-U:IF U=1 THEN IN$(LEN(IN$)+1)=
   "E-0 ":GOTO 2255:REM UNDERLINE OFF
FS 2220 IN$(LEN(IN$)+1)=" E-1":GOTO 2255:
   REM UNDERLINE ON
MH 2230 E=E+1:IF E>1 THEN E=0
PB 2235 IF E=1 THEN IN$(LEN(IN$)+1)="_":X
   P=XP-2:GOTO 2255:REM ENLARGE ON
OD 2240 IN$(LEN(IN$)+1)="●":XP=XP-1:GOTO
   2255:REM ENLARGE OFF
GQ 2250 IN$(LEN(IN$)+1)=CHR$(A)
XD 2255 XP=XP+1+E:IF XP<XMAX THEN NEXT I
OQ 2257 IF E=1 THEN IN$(LEN(IN$)+1)="●"
YG 2260 IF THK=1 THEN OUT$="EEEG"
ER 2261 IF THK<>1 THEN OUT$=""
MP 2262 OUT$(LEN(OUT$)+1)=IN$
WW 2263 IF LA>1 THEN OUT$(LEN(OUT$)+1)=SP
   C$(1,SBL):OUT$(LEN(OUT$)+1)=IN$
XU 2266 IF LA>2 THEN OUT$(LEN(OUT$)+1)=SP
   C$(1,SBL):OUT$(LEN(OUT$)+1)=IN$
NL 2270 LPRINT OUT$
XK 2280 NEXT YP
YW 2290 FOR I=1 TO LBL:LPRINT :NEXT I
SW 2300 B=B+1:IF B<LD THEN 2180
AN 2310 ? "↓↓↓↓↓↓":GOTO 400
VK 2350 ? "K↓↓↓             K PRINTER ERROR
   "
MT 2360 ? :? :? "      Please check your p
   rinter"
PW 2370 ? :? :? :? :? :? :? :? :? :? :? "
     Press any key to continue";:GET #
   3,A:GOTO 400
KJ 3000 POSITION 2,18:? "Please enter the
    filename":POKE 702,64
GA 3010 POSITION 2,21:TRAP 3010:IN$="":IN
   PUT IN$
PE 3020 IF IN$="" THEN POP :GOTO 400
OI 3022 IF LEN(IN$)<3 THEN IN$(LEN(IN$)+1
   )=" "
BO 3025 REM Before entering the next line
   , type POKE 82,0 to set the margin.
DU 3030 IF IN$(1,2)<>"D:" AND IN$(1,3)<>"
   D1:" AND IN$(1,3)<>"D2:" AND IN$(1,2)<
   >"C:" THEN OUT$=IN$:IN$="D:":IN$(3)=OU
   T$
UL 3040 TRAP 40000:RETURN
LB 3100 ? "K↓↓                      ":?
   "              SAVE LABEL ":? "
                  "
RW 3110 ? "↓↓↓↓↓↓↓A previous file will be
    erased if it           has the same
   same."
JD 3120 GOSUB 3000:TRAP 3300:OPEN #4,8,0,
   IN$:FOR I=1 TO 280:PUT #4,ASC(A$(I)):N
   EXT I:? #4;XMAX:? #4;YMAX
YP 3130 ? #4;LBL:? #4;SBL:? #4;LA:? #4;LD
   :CLOSE #4:GOTO 400
```



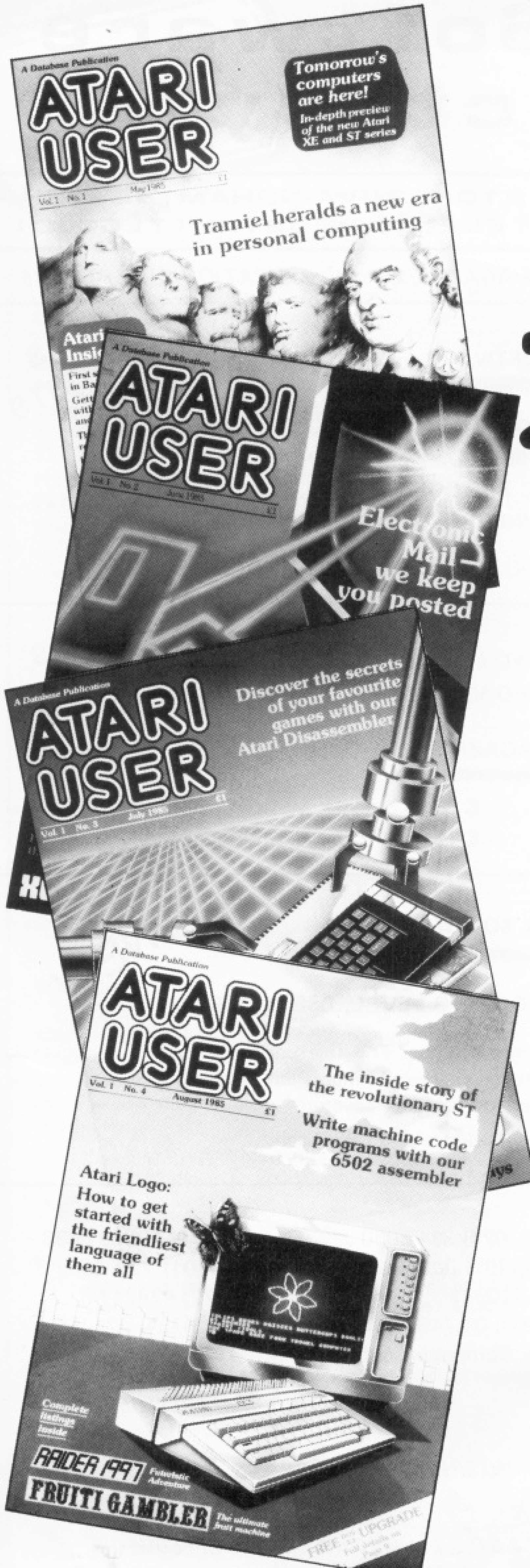
THANK YOU ANALOG

We have been asked by ANALOG magazine to point out that the Basic Loader used for Carols in issue 13 and in other programs was developed by Tom Hudson and originally published in ANALOG. We apologise for not giving credit where it is due.

If contributors use routines from other programs would they please include REM statements in their programs indicating sources so that original authors receive due credit.

```
FY 3200 ? "K↓↓                      ":?
   "             LOAD LABEL ":? "
                 "
BV 3220 GOSUB 3000:TRAP 3300:OPEN #4,4,0,
   IN$:FOR I=1 TO 280:GET #4,A:A$(I)=CHR$
   (A):NEXT I:INPUT #4,XMAX:INPUT #4,YMAX
SA 3230 INPUT #4,LBL:INPUT #4,SBL:INPUT #
   4,LA:INPUT #4,LD:CLOSE #4:X=0:Y=X:GOTO
    400
VI 3300 TRAP 3300:CLOSE #4:TRAP 40000
SZ 3310 ? "K↓↓↓↓↓               
   ":? "  !!!!!    DISK ERROR    !!!!
   !":? "                   "
AX 3320 ? :? :? "  Please check your dis
   k drive."
IX 3330 ? :? :? :? "Error number ";PEEK(1
   95):? :? "File  ";IN$
KH 3340 ? :? :? :? "         Press any key t
   o continue";:GET #3,A:GOTO 400
```

□



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FIRST STEPS

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A-Z OF BASIC PART 4

SETCOLOR (SE.)

This will set up the colour registers for the PLOT/DRAWTO graphic mode commands, and the PRINT #6; commands in text modes. They are directly linked with COLOR. There are five colour registers (0-4) accessible through this command, but other registers can be called using POKE statements. Each register is set at a particular colour, called a default colour. These can be changed using SETCOLOR R, C, I where R=colour register, C=colour, and I=intensity (brightness). This can be put directly into memory by POKE (location), 16*C+I. A table follows giving all the relevant details.

SE.0	POKE 708	CAPITALS
SE.1	POKE 709	INVERSE CAPITALS
SE.2	POKE 710	LOWER CASE/WINDOW/BORDER
SE.3	POKE 711	INVERSE LOWER
SE.4	POKE 712	BACKGROUND

In graphic modes, SE. will colour a point. Which one depends on the mode called. For more detail it is best to consult a tutorial.

SGN

Returns the sign of a number. It will return for a negative number, 1 for a positive number, and 0 if the value is 0.

Example: X=SGN(-10)

SOUND (SO.)

This opens a sound channel in the form, SO. C, N, D, V, where C=channel (0-3), N=a note between 0 and 255, D=distortion (0-15), V=volume (0-15). Experimentation with this will demonstrate all the effects. By using FOR/NEXT loops and N or V other, more intricate, effects can be obtained.

Example: 10 FOR N=0 TO 255 STEP5: FOR V=15 TO 0 STEP -1: SO.0,N,10,V: NEXT V: NEXT N

SQR

Returns the square root of any positive number. Due to the nature of the floating point ROM, some roots may work out to decimal places, eg. 2.9999 instead of 3. To get round this just multiply by 10, add 1, divide by 10, and take the integer. If the answer will have decimal places, you will need to use 100, 1000, etc. to work out the correct solution.

Example: X=SQR(100)

STATUS (ST.)

Used to determine the condition of a file opened for input only. XIO is a safer and better form. It will store the error number in the variable. See DOS 2 manual for an example program.

Example: 10 STATUS #1, VARIABLE

STEP

Used with FOR/NEXT loops to increment or decrement the loops by more or less than the default value of 1. See FOR and NEXT.

Example: 10 FOR V=15 TO 0 STEP-1: SO.0,10,10,V: NEXT V

STICK

This will read the position of the designated joystick. The four sticks can be PEEKed directly from locations 632-635.

Example: 10 ? STICK(0): GOTO 10 :REM To find the number returned for each handle position

STRIG

This will read the trigger of the joystick. They can be directly PEEKed from locations 644-647. As for PTRIG, 0=pressed, 1=not pressed.

Example: IF STRIG(0)=1 THEN ? "NO"

STOP (STO.)

This is used in the deferred mode to return a program to direct mode without closing files or sound. It will display "STOPPED AT LINE xxx". The program can be restarted with CONT. When stopped, you can print current variable or string values for program testing.

STR$

This will change a number into a string. It is similar to defining a string, but you can change a variable to a string, whereas you cannot define a string from a variable. Mainly used to do computations on strings.

Example: A$=STR$(100): REM *** Means A$=100

THEN

Linked with IF. When the IF part of the conditional statement is true the THEN part is carried out.

TO

Linked with FOR/NEXT to give the limit of the variable. See FOR and NEXT.

TRAP (T.)

Normally an error during the running of a program will stop and transfer it to direct mode. This can be tedious, as the

by Mark Hutchinson

program will have to be restarted each time. TRAP, with a line number, will send the program to this line number to give an indication of what has occurred. The program can then be automatically restarted by GOTO [the routine that caused the error]. TRAP must be reset each time by TRAP to a line that does not exist in the program (normally 40000 - an illegal line outside the computers range). This is useful in debugging a program, but comes into its own when you need to stop stupid user responses that would cause a crash. In the following example, if the input is not a number, the user will be told this and given another chance to enter a response, instead of seeing ERROR 8. Try entering your name to the program instead of a number, then delete line 10 and do the same again.

Example:
```
10 TRAP 100
20 INPUT A
30 ?"O.K.": END
100 ? "INPUT A NUMBER":
TRAP 40000: GOTO 10
```

USR

This gives entry to a machine language (ML) program starting at the memory location stated. Normally it will return a value to the variable in the command, but most times this is not required. Several numbers, variables, or strings can be included in the brackets. These will be used by the ML program and are held on the program stack until needed, ie. moving memory from one location to another. If the program is held in a string, the USR function can go to the current address of this string (it can be anywhere in memory) by using the ADR function.

Examples:
```
10 X=USR(1536)
10 Y=USR(ADR(A$))
10 Z=USR(1536, ADR(A$), ADR(B$))
```

VAL

This is the opposite of STR$. It will return the value of string number so that string computations can be performed.

Example:
```
10 A$=100: A=SQR(VAL(A$)): ? A
```

XIO (X.)

This is for general I/O operations and is handy for such things as reading a disk directory without recourse to DOS. It comes in the form XIO COMMAND, #n, n1, n2, file, where n is the device number, n1 and n2 are control bytes, mostly set at 0, and file is the filename to be operated on. For the fill function, it will be "S:" for screen and the device will be #6. A list of command numbers is given below.

Examples:

3	OPEN	18	FILL
5	GET RECORD	32	RENAME FILE
7	GET CHARACTERS	33	DELETE FILE
9	PUT RECORD	35	LOCK FILE
11	PUT CHARACTERS	36	UNLOCK FILE
12	CLOSE	37	POINT
13	STATUS	38	NOTE
17	DRAW LINE	254	FORMAT DISK

A new column by Mark Hutchinson begins shortly

GOTO DIRECTORY

The GOTO DIRECTORY is a guide to retailers who provide product support for Atari. Many of these retailers will supply Mail Order so if you have trouble finding a supplier, turn to the GOTO DIRECTORY.

Retailers who are interested in an entry in this feature are invited to contact the Editor on 0785 41153.

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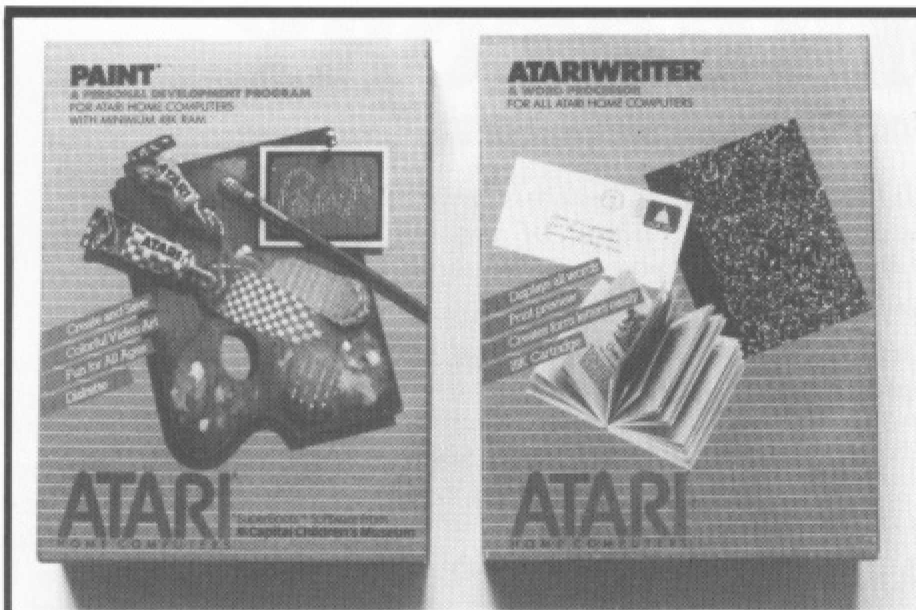
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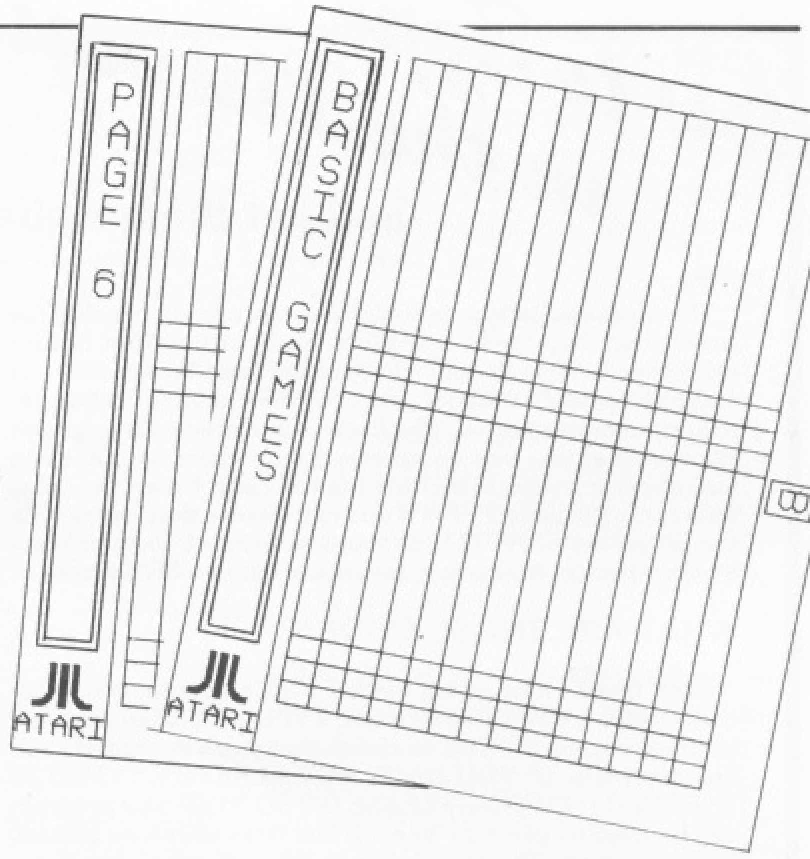
HOW?

By writing an article or sending a program to PAGE 6

During 1985 we will be giving away an AtariWriter cartridge to the author of the best article published in each issue and a Paint cartridge to the author of the best program submitted. All contributions will be re-considered prior to publication of each issue so that if you do not receive the award for a particular issue, your article or program will still be in the running for the next issue. In addition to this all articles or programs published will still be eligible for awards in the annual Readers Poll so it really is worth writing an article or sending in a program.

Articles may be on any subject of interest to Atari users and should be at least one magazine page length. Diagrams, charts, illustrations or even photographs(!) may be included if you wish. Programs can be for any memory size and may be games, utilities or more serious programs provided they are of general interest. If possible please submit articles and programs on a DOS 2.0 or DOS 2.5 disk (which will be returned or replaced if requested by a disk from the PAGE 6 Library). Any DOS 2.0 compatible word processor may be used. If you do not have a disk drive, please use cassette but ensure that TWO copies are recorded, one of which should use LIST "C:". Hard copy listings of programs are NOT required but documentation explaining how to use the program should be included. Typewritten or handwritten articles are still welcome if you cannot manage disk or cassette and will be given equal consideration. Written program listings will not however be accepted. Come on, let's see your articles and programs. Best of luck!

This issues awards go to Steve Pedler who receives Atarwriter for his article on Antic modes and to David Blease who receives Paint for yet another mammoth adventure!



INLAY CARDS

by Stephen Taylor

If you are a cassette user with a 1020 Printer/Plotter you may find this program useful.

I found that the inlay cards for my cassettes quickly became tatty so this program was developed to print new inlays. The paper itself is too thin to use alone so I either stick it to a piece of card or insert it behind the existing inlay. Just RUN and print!

```
WO 1 REM ******************************
FV 2 REM *     1020 CASSETTE LABELS     *
RT 3 REM *            by                *
ZX 4 REM *       STEPHEN TAYLOR         *
SR 5 REM * -------------------------- *
PB 6 REM *  PAGE 6 MAGAZINE - ENGLAND *
WU 7 REM ******************************
NN 8 REM
WZ 50 DIM TITLE$(15)
NI 60 GRAPHICS 0:? :? "    CASSETTE INLAY
   PRINTER 1020 "
KB 70 SETCOLOR 2,3,0:SETCOLOR 4,4,0:? :?
   :? :? :? "INPUT TITLE OF CASSETTE (MAX
   IMUM 15)  CHARACTERS ";:INPUT TITLE$
VI 100 OPEN #3,8,0,"P:"
JB 102 ? #3;"ξ\*H*I*C0"
QU 900 REM
EY 910 FOR Y=40 TO 330 STEP 20
LV 920 ? #3;"M0,";-Y:? #3;"D435,";-Y
MJ 930 NEXT Y
HW 1000 REM
MO 1180 RESTORE 1260
MF 1200 READ X,Y
CJ 1202 IF X=999 THEN 2500
HO 1204 IF X=888 THEN A=410:B=-340
VZ 1220 ? #3;"M";X+A;",";-Y+B
NF 1225 READ X,Y
RY 1230 ? #3;"D";X+A;",";-Y+B
OC 1240 GOTO 1200
JZ 1259 REM
UK 1260 DATA 0,0,470,0,470,0,470,520,470,
   520,0,520,0,330,470,330,0,390,470,390
IV 1270 REM
OL 1280 DATA 225,39,225,320
JF 1281 DATA 210,320,210,39
VZ 1282 DATA 195,39,195,320
QZ 1283 DATA 180,320,180,39
TM 1284 DATA 0,39,0,320
5Q 1285 DATA 435,39,435,320
NN 1286 DATA 420,320,420,39
PJ 1287 DATA 405,39,405,320
VH 1288 DATA 390,320,390,39
AI 1290 DATA 888,888,888,888
KA 2259 REM
QB 2260 DATA 27,1,30,1,27,2,30,2,27,3,30,
   3,27,4,30,4,27,5,30,5,26,6,30,6,25,7,3
   0,7,25,8,29,8,24,9,29,9,22,10,28,10
XK 2262 DATA 1,11,27,11,1,12,26,12,1,13,2
   4,13,1,14,21,14,1,18,30,18,1,19,30,19,
   1,20,30,20,1,21,30,21,1,22,30,22
EH 2264 DATA 1,26,21,26,1,27,24,27,1,28,2
   6,28,1,29,27,29,22,30,28,30,24,31,29,3
   1,25,32,29,32,26,33,30,33,26,34,30,34
FZ 2266 DATA 27,35,30,35,27,36,30,36,27,3
   7,30,37,27,38,30,38,27,39,30,39,999,99
   9,999,999
IH 2500 REM
FK 2510 ? #3;"S1*C3*M460,-388*Q3*PATARI"
IX 2520 ? #3;"S2*Q0*C2*M5,-30*PA"
PY 2530 ? #3;"C3*M230,-30*PB"
OB 2535 ? #3;"Q3"
WN 2540 FOR I=1 TO LEN(TITLE$)
ZV 2545 SH=SH+25
RG 2550 ? #3;"M";20+SH;",";-365
QZ 2560 ? #3;"P";TITLE$(I,I)
FV 2570 NEXT I
AR 2580 ? #3;"C2*M0,-340*D400,-340*D400,-
   380*D0,-380*D0,-340"
IF 2582 ? #3;"M5,-345*D395,-345*D395,-375
   *D5,-375*D5,-345"
OR 2590 ? #3;"*C2*M0,-5*D22,-5*D22,-35*D0
   ,-35*D0,-5"
JD 2595 ? #3;"C3*M225,-5*D247,-5*D247,-35
   *D225,-35*D225,-5"
MW 2600 ? #3;"M0,-600":CLOSE #3
TR 2700 ? "K":? :? :? :? :? :? "DO YOU WA
   NT ANOTHER CASSETTE INLAY    (Y/N) ";:
   INPUT TITLE$:IF TITLE$="Y" THEN RUN
FF 2710 END
```

How to Type in the Listings

and get them right!

The program listings in PAGE 6 are prepared carefully to ensure that they can be typed in as easily as possible. Before typing any listings ensure that you are familiar with the use of the Shift and CONTROL and INVERSE keys as outlined in your computer manual. The listings are prepared to match exactly what you see on screen. Every character that you may see in a listing is included in the chart below for cross reference. By using TYPO II you can ensure that you type in the programs EXACTLY as they are printed. Remember a single typing mistake may mean a program will not run.

WHAT ARE THOSE CODES?

Each line of a program begins with a special two letter code. THESE SHOULD NOT BE TYPED IN. They are used by the program TYPO II to check that you have typed each line correctly. IF YOU HAVE NOT ALREADY TYPED IN THE TYPO II LISTING PLEASE DO SO NOW. The program can be used as you type in each line or to check an already typed program. The code for each line will match but if you have problems check the listing conventions below carefully, you are most probably typing a CONTROL character incorrectly. TYPO II cannot check if a line has been missed so if you have problems in running a listing count the lines in the program and ensure none are missing. If the TYPO codes match and the program still does not run, LIST it to cassette or disk using LIST "C:" or LIST "D:filename", switch off the computer, re-boot and then ENTER the program using ENTER "C:" or ENTER "D:filename". Save this version in the normal way.

HOW TO USE TYPO II

1. Type in the listing carefully for although you can use TYPO II to check itself (see 6 below) it may not work if you have made mistakes.

2. SAVE or CSAVE a copy of the program.

3. Each time you want to type in a program listing RUN TYPO II *first*. You will be asked to 'Type in a program line'. Type in a line as shown in the magazine *excluding the first two letter code* and press RETURN.

4. The line will re-appear at the bottom with a two letter code. If this code matches the one in the magazine carry on and type the next line.

5. If the code does not match, press RETURN and the line will re-appear at the top. Use the editing keys to correct the line and press RETURN again. Repeat if necessary until the codes match.

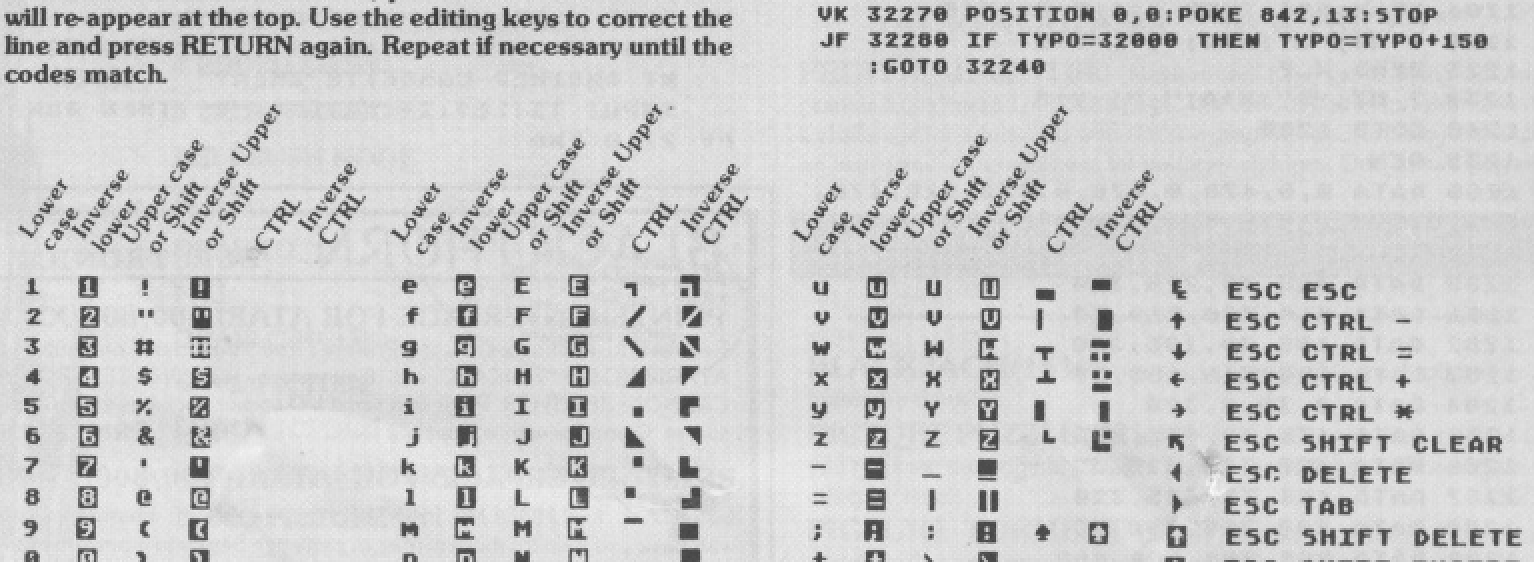
6. To check a line you have already typed, type an asterisk (*) followed by the line number *with no space between*. The line will appear and can be edited as in step 5.

7. When you have finished a listing type the word END and press RETURN. This will delete TYPO II and you can then save your program.

You can type in a program without using TYPO II by having a LISTed version of TYPO on disk or cassette. To check your listing ENTER your TYPO listing, type GOTO 32000 and follow step 6 above.

Always SAVE or CSAVE a program before running it.

```
WB 32000 REM TYPO II BY ANDY BARTON
VM 32010 REM VER. 1.0 FOR ANTIC MAGAZINE
HS 32020 CLR :DIM LINE$(120):CLOSE #2:CLO
   SE #3
BN 32030 OPEN #2,4,0,"E":OPEN #3,5,0,"E"
YC 32040 ? "K":POSITION 11,1:? "TYPO II"
EM 32050 TRAP 32040:POSITION 2,3:? "Type
   in a program line"
HS 32060 POSITION 1,4:? " ":INPUT #2;LINE
   $:IF LINE$="" THEN POSITION 2,4:LIST B
   :GOTO 32060
XH 32070 IF LINE$(1,1)="*" THEN B=VAL(LIN
   E$(2,LEN(LINE$))):POSITION 2,4:LIST B:
   GOTO 32060
NX 32080 IF LINE$="END" THEN 32230
JN 32090 POSITION 2,10:? "CONT":B=VAL(LIN
   E$):POSITION 1,3:? " ";
NY 32100 POKE 842,13:STOP
CN 32110 POKE 842,12
ET 32120 ? "K":POSITION 11,1:? " TYPO II 
   ":POSITION 2,15:LIST B
CE 32130 C=0:ANS=C
QR 32140 POSITION 2,16:INPUT #3;LINE$:IF
   LINE$="" THEN ? "LINE ";B;" DELETED":G
   OTO 32050
VV 32150 FOR D=1 TO LEN(LINE$):C=C+1:ANS=
   ANS+(C*ASC(LINE$(D,D))):NEXT D
WJ 32160 CODE=INT(ANS/676)
JW 32170 CODE=ANS-(CODE*676)
EH 32180 HCODE=INT(CODE/26)
BH 32190 LCODE=CODE-(HCODE*26)+65
HB 32200 HCODE=HCODE+65
IE 32210 POSITION 0,16:? CHR$(HCODE);CHR$
   (LCODE)
VG 32220 POSITION 2,13:? "If CODE does no
   t match press  RETURN  and edit line a
   bove.":GOTO 32050
PO 32230 TYPO=32000
NQ 32240 POSITION 2,2:? "K"
RH 32250 FOR DEL=TYPO-10 TO TYPO+150 STEP
    10
DK 32260 ? DEL:NEXT DEL:? "POKE 842,12:?
   CHR$(125):CONT"
VK 32270 POSITION 0,0:POKE 842,13:STOP
JF 32280 IF TYPO=32000 THEN TYPO=TYPO+150
   :GOTO 32240
```



contact

ANALOG 29: The only one I've missed since issue 1 so you see how desperate it is! Good price paid for mint condition copy. Les Ellingham c/o PAGE 6

SYSOPS: We have a letter from Paul Camerano of Montreal, Canada putting forward an idea of exchanging message bases between his BBS and boards in the U.K. If you are interested in pursuing this idea (it sounds like a good one), please send a s.a.e. to Les Ellingham at PAGE 6 and we will send you a photocopy of Paul's letter.

U.S.DOUBLER: Can anyone tell me how to use the Ultraspeed I/O without SpartaDos? Steve Hind, 28, Chapel Lane, Ravenshead, Nottingham, NG15 9DA

BACK ISSUES: Issues 1 - 7 wanted, any condition or even photocopies. Will pay or exchange ANTIC Vol.2 No.3, Vol.3 No.1 or ANALOG 19 and 26. Please Help! Andrew Thompson, 135, Henllys Way, St. Dials, Cwmbran, Gwent, S.Wales.

ATARI 1200XL: Does anybody know where I can get hold of a 1200XL? I've written to all the good retailers in the U.S. with no luck. Gerald Forrester, 109, Sandpiper Place, Greenhills, East Kilbride, G75 8UP, Scotland.

EMPIRE OF THE OVERMIND: I have mapped hundreds of locations but still have no idea of how to conquer Overmind. Can anyone help? Please contact Rick Gillman, 34, Moorcroft Road, Moseley, Birmingham, B13 8LX. Tel. 021 449 2007

BACK ISSUES: Issues 1 and 2 of PAGE 6 wanted in good condition. Photocopies accepted. Will offer exchange. Contact Geoff Webb 5, Shipston Road, Coventry, CV2 3AH or Tel. Coventry 443963

DOES ANYONE have a program, or the knowledge to write one, which will plot full size model aerofoil sections on my Epson printer. I can offer in exchange a program which will calculate model glider performance. Gordon Tarling. Uxbridge (0895) 51551.

ARROW OF DEATH Pt. 1: Could anyone tell me how to get into the 'giant building' without tripping? What do you do with the rope and hook? How do you get into the cave without being killed? David Rutter, 30, Birchgate, Bucknall, Stoke-on-Trent, ST2 8JT. Tel. 0782 281599 (after 4 p.m.)

WANTED: 810 disk drive. A.E. Daffurn, 24, Winterbottom Road, Hesters Way, Cheltenham. GL51 0HR

ATARI 1029 PRINTER: For sale. Offers to Phil Brown, 57, Bank St. Newquay, Cornwall. Tel. Newquay (06373) 2511

PEN PALS: I would like to correspond with other 800XL and cassette owners anywhere in the world. I am 11 years old. David Swan, 13, Ramsay Court, Craigshill, Livingston, EH54 5NH, Scotland.

ARROW OF DEATH Pt. 2: Help! I am stuck at the grill on the stone slab. In return for help on this I can give help on Arrow of Death Pt. 1, Stranded, Adventureland and even Boulderdash. Also I am just beginning Assembly language and would like to swap ideas or learn along with someone else. Andrew Thompson, 135, Henllys Way, St. Dials, Cwmbran, Gwent. S. Wales.

LOGO: Atari owner anxious to contact other users of LCSI LOGO to exchange ideas. Tel. Stan on 051 734 3490.

PEN PALS WORLDWIDE: Pen pals with Atari 800/XL and disk drive wanted. Mark Jones, 18, Cadoc Road, W. Pontnewydd, Cwmbran, Gwent, NP44 1HA.

TIME MACHINE: Can anyone tell me how to get into the Police Box and/or how to remove the metal plate on the Grassy Plain? Mark Jones, 18, Cadoc Road, W. Pontnewydd, Cwmbran, Gwent, NP44 1HA.

NEW FOR OLD: Would anyone swap a 810 disk drive and 410 cassette for my 1050 disk drive and 1010 cassette? M. Myring, 15, Breeze Hill Road, Atherton. Lancs. M29 9RJ.

810 DISK DRIVE: Wanted URGENTLY or has anybody got an Atari 800 (not XL) for sale? Mark Jones, 18, Cadoc Road, W. Pontnewydd, Cwmbran, Gwent, NP44 1HA.

EXCHANGE OR SELL: 100 assorted computer magazines, Kevin Keegan handheld soccer game, Microvision Handheld computer games system (inc. 1 cartridge). £30 the lot (will split) or will swap for any printer that plugs in directly (will pay difference). Alan Wheatley, 48, Cameron Crescent, Buckie, Banffshire, Scotland, AB5 1AD.

HAM RADIO: Anyone interested in using their Atari for radio communications. I would like to hear from you. I am currently running RTTY and CW transmit and receive and would be only too glad to help or just talk to anybody who is interested. John Sheppard, 37, Oakfield Road, Kingswood, Bristol, BS15 2NT.

RAM PACKS: Two 16k RAM packs (CX853) and one BASIC cartridge (CXL 4002) for sale. Realistic offers please to Doug Ryder on Brownhills 379098.

SNOWBALL: Does anyone know how to get the BATpak from the video viewer? Contact Phil O'Dea, 19, Park Avenue, New Earswick, York, YO3 8DB

NOTTINGHAM USER GROUP: The Nottingham Micro Club is made up of several user groups covering most home micros. The ATARI group meets on the second and fourth Mondays of each month. All are welcome. The club meets at the Castle Gate Congressional Federation Building - opposite Marks & Spencer - in the centre of Nottingham. Meetings start at 7.30 p.m. For further details contact Steven Hind, 28, Chapel Lane, Ravenshead, Nottingham, NG15 9DA. Tel. 0623 795371.

LADS ASSEMBLER: Has anyone got the LADS Assembler program from Compute!'s Second Book of Machine Language up and running on cassette with an 800XL? I cannot get it to boot. Please help. Les Isbister, 1, Mulberry Close, Biggleswade, Beds. SG18 0HU

COMING SOON
A GRAPHICS ISSUE

We have a number of reviews and utilities for the TOUCH TABLET and would like to put together a special graphics issue. Your contributions on a graphics theme are required. We are particularly interested in a good drawing or graphics program. Send it in!

YOUR HELP PLEASE!

DRAUGHTS from issue 17 runs on the XL or XE but not on the 800 and I cannot figure out why. If any reader can come up with an explanation and suggest a fix I would be most grateful.

Les Ellingham

Beyond ATARI

A series by John J. Smith

looking at aspects of communication

Most of you know about the modem offering communication between computers via the telephone line but there is another way! The ham radio enthusiasts amongst you will have heard of this mode of transmission, it is called RADIOTELETYPE or RTTY for short. Are there any hams amongst page 6 readers?

RADIOTELETYPE

RTTY was originally developed for teleprinters but now that microcomputers are easily available noisy greasy teleprinters like the Creed 7b are being replaced so the enthusiast can come in from that cold drafty garden shed to the warmth and comfort of the living room but due to the completely different systems it is not possible to just plug in and go! The coding system used in RTTY is the Baudot or Murray system using 5 bits instead of the 7 or 8 bits used by computers in the ASCII standard. In addition the baud rate is much slower (50/75/110) due to the mechanical nature of the original equipment.

First let me explain what RTTY is - it it a method of sending and receiving messages by radio. I must make it clear that if you want to transmit or send a message you must have the appropriate transmitting licence to do so legally so this limits the field a bit but all is not lost. If you have a radio with a short wave band tune in and listen to all those bleeps like morse code sounds. Not all of those sounds are morse, some of the very fast sounding ones are in fact RTTY signals and as these are ordinary audio signals they can be recorded on an ordinary cassette recorder which can save the sounds for you to play back later.

In order to understand these signals you will need a decoder - a sort of modem - which plugs into either the earphone socket or extension speaker socket on the radio or your cassette and another lead to plug the decoder (modem) into the computer. Once you have this all you basically have to do is tune in your radio until you hear those funny bleeps whilst watching your tv monitor screen for the printed messages to appear. Be warned though, you are likely to see things like press reports covering news to and from newspapers much of which is copyrighted and any information accidentally obtained by scanning the band should not be be revealed to a third party. Some of the commercial users transmit messages in some sort of code, usually in blocks of 5 characters, and although you will see it on screen it will be meaningless. Don't think that your decoder has gone wrong, it just prints data as it is received in the same way it was sent.

There are many ham transmissions both in the U.K. & U.S.A. and to a lesser degree worldwide and several factors affect reliable reception of the signals. The performance is dependent on the type of radio receiver of course and is usually proportional to cost but there are other things like the time of day, the weather (yes, really) and choice of frequency which will affect results.

There has been quite a lot published on this subject elsewhere so I will not go into too great a detail here but I think that many PAGE 6 readers will be surprised to learn that their computers can be used like this.

GETTING CONNECTED

If your interest has been sufficiently aroused you will by now be asking how can a decoder be obtained and what make is the best. I feel it would be out of place in a column such as this to list specific items so I suggest that you contact a specialist ham radio shop. If you want to buy one ready made you might even get one off the shelf but it may cost you in the region of £150 to £200 for a ready built unit which might also decode morse code into printed words and come complete with built in AMTOR satellite link! If you want to build a simpler unit yourself, many excellent designs exist and a unit will cost you from £15.00 to £50.

This sort of equipment nowadays usually has RS232c connecters so assuming that you have a suitable interface already for use with your ATARI you should be able to connect up. A printer (even a cheap one) will come in handy too.

One final thing to remember is that computers need software to enable them to know what to do with the information coming in from the radio modem just as a telephone modem does. Several programs do exist, although I don't know of any commercial packages for the Atari. The U.K. Atari Computer Owners Club have published programs for use with radio or morse or you might like to write your own.

I hope that this article has shown that there are wider uses for your Atari. I think it is important that we do not fall into the trap of looking at our hobby with blinkers on - there is more going on in computing than you think. Although this is a specialist subject everyone should be made aware of just what can be done so that people can then start to specialise in areas that interest them. This is similar to the situation 10 years ago when many people who had electronics as a hobby realised that it was possible to build a computer and get it running. The problem then was that few people knew high level languages like BASIC (which is now a run of the mill standard) and there was no sound, no colour and no graphics so what few games there were had to be question and answer type games. People persevered though and now look at what can be done. Who knows what may become of using computers on the airwaves.

Let me know via PAGE 6 how far you can stretch your imagination and what you are you using YOUR computer for, maybe something special like ROBOTS? ●



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Bug Club Call

Well, could I begin by apologising for missing the last couple of BUG CLUB CALLs but I was a bit late for the copy dates. I did actually apologise in the last issue for missing the issue before but I was a bit late with that too!. I am trying to make it a regular feature. Basically, amongst a lot of uninteresting writing, the crux of the last column was informing everyone that we have changed the location of our meetings, due to the conversion of the Matador into a temporary swimming pool. The Matador has since re-opened but we like our new place so much we have decided to stay. You can now find us at THE ROYAL GEORGE, Digbeth High Street. It is directly opposite St. Martins Church, a stone's throw from the Matador.

So, what's been happening since then? Well, most of it seems old hat now, and what doesn't will do by the time you read it but I don't intend to miss the deadline this time!

Some months ago we had a Macintosh brought in to play around with to show what kind of a machine the ST would be like. Then, some weeks before they were available, Software Express let us borrow a 130XE to play around with for the night. A couple of weeks later we received a present from John Spring, proprietor of Computer World in Broad Street. We cannot thank him enough for the donation of a 130XE to the club. At the next main meeting we had a visit from Paul Woakes of 'Encounter' fame. He brought along a prototype of his new game 'Mercenary' for us to play with and even asked for our ideas and criticisms. Now, if you thought the graphics on Encounter were stunning you want to see what is coming up this time.

And now it is time to thank Andre Willey again. By the time this goes to print, the 520ST should be available and most of you will have seen it, but it's only June at the moment and last week good old Andre managed to get hold of not just the computer but a 3½" drive, monitor and printer too. It is very impressive but just a little too large to fit on my desk! We did have a little trouble with the printer but it was only development software.

A new section has now been established within the club. I don't know what you'd call them but they get their kicks by ripping machines apart and adding things to them and interfacing and serial bussing and that kind of thing. If that's your scene then you need to look up Wilf Coton to find out what they're about.

There is also some very good user written software being demonstrated and developed at the club. Scamp and Russ's Character Editor are two excellent examples. They make my programs look silly in comparison. So if you want to see the new generation of computer millionaires in action you should be at BUG on a Thursday night! We know there are a lot more users out there that are not members yet so why don't you drop in one night and see what we can interest you in.

Mike Wilkinson

SHOOTING GALLERY

continued from page 13

```
LA 1500 DATA 0000000070007200610063007400
   6900630065000000002239002725 2F26260034
   282F2D30332F2E0000E6EFF2,2220
OH 1510 DATA 00F0E1E7E500D600EDE1E7E1FAE9
   EEE50000000000000000E5EEE7ECE1EEE4000000
   000000000000000000000000,4632
WU 1520 DATA 000000000000303225333300B3B4
   A1B2B4000000000000000000000000000000000
   000000000000AAFFFFFFFFFF,2560
NM 1530 DATA FFFFAAFEFEFEFEFEFEFEFE40404040
   40404055010101010101015555404040404040
   405501010101010101010106,3716
ED 1540 DATA 061E1E7E7E4040D0D0F4F4FDFD01
   010101010101A9FDF5F5D5D555556A7E5E5E
   565655555555555555555555,4814
VD 1550 DATA 557575EDED75555533232F32251A
   10101010002C2536252C1A10110022352C2C25
   34331A101000282934331A10,2264
IM 1560 DATA 100090000000000000000080A7A1
   ADA580AFB6A5B2800000000000000000000090
   08081414080800005191 7135,2374
KR 1570 DATA 5191AD007B7B9BB3B3B3B318245A
   A5BDA55A24183C7E7E01037FFF381C007F7F7F
   7F7F7F7F00909192939495 96,5035
FP 1580 DATA 9798998A000000000000000000000
   000000000000000000000000000000000000000
   000000000000000000000000,594
```

SPIRALS

We don't receive a great deal of good quick-to-type demos so this one by Brian Hills of the Asterix Users Group in Brighton is most welcome. Type it in, you'll enjoy it!

```
JA 1 REM SPIRALS BY BRIAN HILLS
PA 10 DIM A$(27):FOR A=1 TO 27:READ B:A$(
   A,A)=CHR$(B):NEXT A
SJ 20 FOR I=1 TO 8:POKE 704+I,(I-1)*32+22
   :NEXT I:GRAPHICS 10:SETCOLOR 4,8,8
XV 30 DEG :R=24:C=1:PLOT 39,190
HP 40 FOR E=0 TO 24
HZ 45 POKE 77,0
BW 50 FOR A=0 TO 360 STEP 10:R=R-0.025
IJ 60 X=R*SIN(A):Y=R*COS(A)*4
XK 70 DRAWTO X+39,Y+95
ES 80 COLOR C:C=C+0.3:IF C>8 THEN C=1
JL 90 NEXT A:NEXT E
FG 95 FOR REP=1 TO 500
WD 100 X=USR(ADR(A$)):FOR D=1 TO 40:NEXT
   D:NEXT REP:RUN
KS 110 DATA 104,162,0,172,193,2,189,194,2
   ,157,193,2,232,224,8,144,245,140,200,2
   ,96,65,65,65,65,65,65
```

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